

The Journal of Experimental Pedagogy AND Training College Record.

EDITED, ON BEHALF OF
THE TRAINING COLLEGE ASSOCIATION,
BY
PROFESSOR J. A. GREEN
(*The University, Sheffield*)

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LONGMANS, GREEN & Co. Paternoster Row, London;
New York, Bombay, Calcutta, and Madras.

Price One Shilling net.

(Published three times a year—March, June and December).

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THE FUTURE DEVELOPMENT OF TRAINING COLLEGES FOR TEACHERS IN ELEMENTARY SCHOOLS.*

By T. RAYMONT, M.A.

I.

To be called upon to deliver the annual address to this Association would at any time be no light responsibility. But in the critical period through which we are passing, the attempt to speak the mind of the Association, or to incline its thoughts profitably, is a task of altogether exceptional difficulty. Had we been living in less strenuous times, it might have been appropriate that one whose personal recollections of English training colleges go back through a rather long and an almost continuous stretch of years, should have been allowed to indulge in the luxury of retrospect. But our minds are so filled with the needs of the present and with schemes for the future that it would seem almost frivolous to spend time in talking about what is over and done with. I suppose that most of us already tend to divide our professional lives into three principal parts, the period which preceded the war, the period of the war itself, and the period that will, or may, follow the war. As to the period which preceded the war, especially to those of us in whose cases it happens to be fairly lengthy, how remote it all seems now! We tend (and especially we men whose work has been so violently interrupted) to think of it as part of a closed chapter in educational history, and we fall to wondering what the new chapter has in store for us. Of course this is to a great extent illusion. Catastrophic changes, though they modify, do not destroy the broad fact of continuous development, as we may find to our inconvenience and our cost when we come to work out schemes of reconstruction.

II.

In making the annual survey, which you naturally expect from your President, of current questions that affect training colleges, one experiences a temptation, so numerous and important are those questions, to rove over a wide field, and to touch lightly upon a great variety of topics. Before the war, and to some extent even during the war, there have been notable stirrings of the educational waters. I need only refer in general terms to the many associations that have been formed in recent years for the spread of new propaganda, and for the popularization among teachers of new aims, new ideals and new methods, most of them bearing directly upon those very matters which are the peculiar province of a training college. Upon these matters I can afford time to make only one observation. I do not think it either wise or fair to dismiss any of these contributions to educational thought and practice with the remark that, so far as the contribution is of value, we have been saying similar things to our students for many years past, and that for us what is new in it is not true and what is true is not new. The

* The Presidential Address to the Training College Association, December 16th, 1916.

statement may be accurate enough, but it is hardly to the point. Let us remember that in the main our instructions are addressed only to our young students, and that the fresh ideas with which we may seek to imbue them whilst they remain with us sometimes meet with a chilly reception in the schools to which they proceed when they leave us. And so if others have been able to impress the great army of teachers and administrators where we have not been able to impress them, let us be grateful rather than jealous, even though we may be able to prove conclusively that the doctrine is by no means new to us. Take, for instance, those views as to the freedom and the individuality of the child which are in the minds of many people specially associated with the name of Dr. Montessori, and which perhaps constitute her greatest title to respectful attention. That doctrine has probably been preached in many a training college for decades past, but of necessity with the depressing proviso that in the actual conditions of school work the ideal is obviously unattainable. And if people from outside our ranks are able to gain the public ear, and perhaps to hasten the day when those conditions shall be improved, we should surely be ready to forgive what we may deem their mistakes, and to avail ourselves to the utmost of what we may acknowledge to be their timely help.

III.

Let us pass, however, from these more general topics of current educational debate, closely though they may affect the details of our work, to those problems with which the training colleges are more peculiarly concerned. Here again the field of possible discussion, even if one confined oneself to matters of high and urgent import, is embarrassingly wide. Considerably less than thirty years ago, the term Training College possessed a very simple and well-understood connotation. The English Training Colleges were then, except in regard to their religious connexions, of a single and unvarying type. But now we have day as well as residential colleges; the former, when at their best, being, however, adequately equipped with hostels. Then, in addition to those colleges, with their long and honourable record, which are governed by the older voluntary associations, we have those which are controlled by universities, and those which are controlled by local authorities. Again, in addition to men's and women's colleges, mixed colleges have come back, after the long interval since certain of the older colleges received both men and women. Once more, the course of training, instead of being almost invariably two years, may now be anything from one to four years, and the colleges might from this point of view be classified according to the predominating kind of student in each. Finally, in addition to the training colleges for elementary teachers, colleges and departments have sprung up, with their own special needs and difficulties for secondary teachers also. The term Training College, then, stands no longer for a simple but for a very complex notion, and I should spend your time unprofitably if I wandered over the whole field. There is only one general remark that I will allow myself. The four-year and the one-year courses probably give general satisfaction, so far as they are operative, but if we were put to it we should probably have to confess that the form of training which causes us real searchings of heart is that in

which the attempt is made to compress into three years, not only the work considered sufficient for the ordinary university student, but also the work which constitutes the reason for the existence of training colleges as such.

IV.

But I pass at once to consider in some detail those colleges whose work consists mainly or entirely in training two-year students for elementary school work. They are the students who form the vast majority of those who are being trained for the work, and who therefore may be said to constitute the backbone of the system; and when we speak of educational reconstruction in the years following the war, it would appear that, if there is to be any reconstruction at all in regard to the training colleges, the colleges which receive mainly or exclusively two-year students must be considered with special care. In our reflections regarding those colleges, we shall probably do well at this stage to give little heed to the practical administrator's view as to what is likely to happen, partly because he can only give a random guess, and partly because now, if ever, is surely the time for considering what OUGHT to happen,—for asking whither our ideals are tending, and in what directions we, of the Training College Association, are desirous of seeing our part of the educational system develop.

V.

But immediately we ask what is to happen to the elementary training colleges, we are thrown back for the moment upon the question what is to happen to the elementary schools. That is much too large a question to be dealt with incidentally, but fortunately other provision has been made for its discussion at this annual meeting. The one thing that I am concerned to note in this connexion is that, whatever happens to the elementary school, we may be quite sure that the demands upon the elementary school teacher will not diminish but increase. Glance through the reports of discussions, in Parliament and in the country, upon (let us say) the Education Bill of 1870—Heaven forbid that you should be doomed to read them—but glance through them, and add to these the reports of similar discussions for twenty subsequent years, and you will be struck by the fact that, though the pages are freely besprinkled with the word education, it never occurred to anyone to consider the idea that lies behind the word. And the reason was not that the speakers had no definite idea. Far from it. They had a perfectly definite idea. It was always tacitly assumed that elementary education consisted simply in teaching the child to read, to write and to cipher, and that the function of the elementary school (apart from religious instruction) was to train the child in these three "mighty arts." We have travelled far since those days, though often by routes that have been as uncertain as the end in view has been undefined. But we are destined to travel farther yet. Just as the Churches have found that the appointed religious services are not enough, that if a Church is to fulfil its proper function, the clergy and ministers and their helpers must go into the highways and hedges, not so much to compel the people to come in, as to comprehend the sort of lives the people are actually living out there.

and to make the Church a vital force in social amelioration; so the school is finding that the appointed lessons, however good they may be, are not enough, that the school must become a social institution in the broadest sense of the term, taking cognizance of what sort of lives the children are living elsewhere than at school, of the tremendous—often the really awful—problems surrounding their physical and moral development, and of what is to happen to them after they have left school. And so the teacher must become something much more than the word has usually signified. He must become a conscious social worker,—in multitudes of cases something of a social missionary. We have all made some acquaintance with the school doctor, the school nurse, and the care committee. But how much do our students ever know of the needs and circumstances that have given rise to these and similar new agencies? What opportunities have we of leading them to realize the broader and bigger part that the school is rapidly being called upon to take in the life of the nation. In the main, we have only such opportunities as arise in connexion with their debating societies, and others of their more serious out-of-class activities. And so, for one thing, we send them out into the schools under the pleasant illusion that practically all the children presently to be committed to their care have the same respectable sort of homes as they themselves come from. Many of them are speedily disillusioned, and if they spoke to you quite candidly the most thoughtful of them would tell you, without in the least blaming you, that the things upon which their training college course laid the greatest stress are not the things that really cause them the deepest solicitude in their daily work. The training college has been careful about many things—about lessons in history and lessons in science and lessons in literature which, along even with the ability to write and spell decently, are in a great proportion of cases forgotten within a year or two of the date of leaving school, especially by the girls; but the training college has missed what is, with reference to these cases, the one thing needful. And that one thing needful can be provided, so far as it can be provided at all, only by seeing that the student gets some practical insight into the conditions amid which the children live, into the agencies that are at work to ameliorate those conditions, and into the kind of school life and school organization that are likely to further the same object.

VI.

And now I can imagine someone saying—"If this means anything, it means further consideration of the training college curriculum, with a view to providing that, whether by modification or by addition, problems of social economics and social welfare shall have a definite and an important place in that curriculum. But have we not recently revised the curriculum, and do we really need to open up that perplexing subject again? In short, why can't we let the thing alone?" For my own part I could not subscribe to, much less advocate, any such comfortable theory. A curriculum is one of those troublesome and insistent problems that simply refuse to be let alone. All history and all experience are dead against the supposition that it can without peril be let alone. For what after all is our curriculum? It is eminently a dynamic and by no means

a static conception. It represents, or ought to represent, at any particular time, carefully weighed opinion as to the studies and exercises which are best calculated to bring our students into vital relations with the work to which they propose to set their hands. And if, as I have suggested, the function of the school in the life of the community is undergoing a steady and deeply significant change, the curriculum of the training college is certainly not one of those things that can safely be let alone. Periods of rapid and sometimes revolutionary change do of course alternate with periods of rest and reflection, but to reflect upon a subject with a view to possible further action is at any rate not to let it alone. The only healthy conception of a curriculum is that it is not a fixed thing; not fixed from decade to decade, nor even from year to year, because times change, and may change quickly; not fixed from district to district nor even from college to college, because every district has its own peculiar problems, and every college has its own peculiar opportunities.

VII.

I am now brought to the next important point to which I beg your attention. And perhaps I can best introduce it by putting a question. What would you say, what would the educational public at large say, if a Government department, or any central authority whatever, proposed to settle the curricula for the various degrees granted by the Universities of England and Wales, and proposed not only to settle the curricula, but also to conduct the examinations of the students? You remember that a system precisely of this character prevailed not many years ago, when the University of London, acting as an examining body, did as a matter of fact so govern the intimate affairs of all the newer colleges of university rank. The whole arrangement has now been swept away, no doubt for various reasons, but for one absolutely overwhelming reason, and that is, that when you appoint a person to teach and to advance a branch of learning, presumably because he is acknowledged to be capable of doing so, you do well to give him a free hand, and you do ill to lay upon him the dead hand of unrestricted external authority. If you asked yourself seriously, concerning the subject in the teaching of which you are most interested, how the really telling contributions to that subject have originated, the contributions that have done most to set teachers' minds working in new and fruitful directions, would you not be compelled to admit that they have almost always originated where the teacher has been free, and almost never where the teacher has been bound by other people's syllabuses and other people's examinations? You see whither my argument is tending, but you may hesitate to accept the full inference, because, proud as you may justly be of the training colleges, your pride may be mingled with a certain sense of humility when they are brought into direct comparison with the universities. Let us, then, take an instance of what must be regarded, in this connexion at least, as a still humbler sphere. That which has happened to the great colleges to which I have referred is precisely that which has also happened to the elementary schools themselves. The fixed curriculum, excogitated in a central office, has long ago disappeared, and every elementary school in the land enjoys a measure of freedom which the training colleges at present do not enjoy. It may be that

the change has been accompanied by temporary features which one would gladly have had otherwise. But the ablest and most thoughtful of the elementary teachers unanimously bless the day when for the first time they were really allowed, in the professional sense, to call their souls their own.

Now as regards the training colleges we must at this point make an extremely important and significant admission. Many of us remember a time when the inspector was supposed to be able, without necessarily consulting us, to find out more about a student's teaching ability in twenty minutes than we had been able to find out in twenty months. The inspectors as well as ourselves knew that the whole proceeding was a farce, and the farce is played out. Both in regard to the practical training in teaching, and in regard to the rest of what are called "inspected subjects," we have been accorded an adequate measure of freedom. But why stop there? Well, the first part of the answer to that question is that we have not stopped there. The recent conferences (and may their tribe increase!) between representatives of the Board of Education and of the college teachers of certain subjects, are welcome indications that the Board are not quite happy about the illogical distinction which is at present made between the inspected subjects and the subjects of the written examinations. If you are free to draw up your own syllabus and, with adequate safeguards, to conduct your own examinations in nature-study, why not also in history and in geography? Indeed, how in the name of common sense are you to work local history and local geography, for all their admittedly enormous worth, without local freedom to go your own way in these matters? Take another instance. There is at present, as is very well known, a marked divergence of opinion amongst us as to the right relations of what we call the general and the professional subjects of the training college course. Now we may depend upon it that this question, which is one of first-rate importance, can never be satisfactorily settled in a Government office. The only chance of settlement is such liberty of experiment in the colleges as I am here pleading for. Talk of letting things alone! There can surely be no letting this particular thing alone until every training college, or possibly in some cases small groups of associated colleges in particular areas, practically, but with all reasonable safeguards, grant their own certificates, and of course stake their reputation upon the value publicly accorded to the certificate, just as a university stakes its reputation upon the value publicly accorded to its degrees. You will have the objection raised that the certificate should be of uniform value. Well, with certain exceptions capable of ready explanation, I do not know that the values of the pass degrees of the various British universities vary a great deal, though there is no agency at work to secure uniformity. At any rate the Board of Education accepts them all alike as *pro tanto* counting towards the teacher's certificate. But in the case of the teacher's certificate, with the Board of Education acting as moderator, such uniformity as is really attainable should not be difficult to secure. There is no force in this objection comparable with the force of argument in favour of giving to the teacher in the training college the freedom which is enjoyed by the teacher in the university. May we not say, with all possible respect, and with the most grateful

acknowledgment of the friendly and natural relations now existing between the Board of Education and ourselves, that a Government department ought not to go on indefinitely acting as an external examining body? In some important respects the position is just what it was seventy years ago, when the old Education Department instituted the first examinations for certificates. In recent years several changes have been made in the right direction. Is it too much to hope that the final step, involving the complete emancipation of the training college teacher, cannot long be delayed? But a college which does not FEEL THE NEED OF FREEDOM is not ready for it and probably ought not to possess it.

VIII.

And now, reverting for a moment to the enlarged conception of the training college curriculum to which reference was just now made, you will ask, and you have every right to ask, how is it proposed that the requisite time should be found, seeing that the curriculum is full enough already. You may object, and quite reasonably, that just as we have succeeded in lightening the curriculum by introducing what the Americans call electives, alternative subjects, it is here proposed to add to the burden once more, and to make the two-year training college once more far too much of a forcing-house. You may say, too, that already the inspectors of special subjects are usually, and taken one by one not unreasonably, pressing for more time for their subjects. You might, I think, go still further with your objections. You might point out that whilst the destruction of the old pupil-teacher system, as some of us knew it, has undoubtedly resulted in bringing what is on the whole a better intellectual and physical type into the training colleges (would that there were enough of them!) yet that important and possibly premature step has in some ways cast a heavier burden of responsibility upon the colleges. The youths and girls of eighteen formerly admitted could face with a most precocious display of confidence classes of 50 or 60 children, and could in a way, I will not say educate them, but at any rate deal with them. The teaching, even at its best, being confined pretty strictly to the contents of shabby little text-books, was without vision. In those days, therefore, the training college was first and foremost a place for adding to the student's knowledge, and broadening his intellectual outlook. Having regard especially to the aim of elementary education as then conceived, the practical training only needed, or was supposed only to need, a sort of finishing touch, in the form of three weeks *per annum* of supervised practice. The present arrangements for the practical training of students do not on the whole differ widely from these, and so we ought not to wonder that we get local authorities, administrative officials, and head teachers complaining that the product of the training colleges is no longer what it once was in respect of practical efficiency. It would, of course, be fairer to compare the past and the present product of the training college a few years after the training college course is over than immediately after. But however we look at it, we must admit that the present position is unsatisfactory. We are therefore driven to the apparently alarming conclusion that not only do the subjects at present taught in the colleges need more time, and not only does the curriculum

need broadening in response to a broader conception of the function of the school, but also that more time and energy ought to be expended on the practical training of the students.

Our students remain under our influence nominally for two years, really for about 22 months. How, then, can these things be done? The answer is that within those limits of time they cannot be done. And here we come to the real root of the matter. We shall all admit that there is nothing sacrosanct about the period of two years. In the year 1834, the chairman of a Parliamentary Committee on education put an identical question separately to the secretaries of the two great voluntary school societies that then existed, and the question was—How long does it take to train a teacher? One of them said—five months. The other said—three years, of which the first three months should be spent in teaching, in order that native aptitude might be tested, and the last three months again in teaching, in order that readiness in the communication of knowledge might be tested. Of course everything depends upon what one means by training a teacher, but there was no doubt then, and there is no doubt now, about which was the wiser answer. A few years later, when Sir J. Kay Shuttleworth took the lead in placing the training colleges upon an improved basis, he made possible a three-year course. The third year was soon abandoned, and for a long period no student was allowed to remain at college for more than two years. With the advent of university training departments the restriction was removed in special cases. But I suggest that the time has come for considering the subject more generally. I suggest that instead of the student-teacher year, which, to judge from what students say, is of extremely varying value, it would be better to have that time spent in the training college, when it could be made of approximately uniform value, and where the practical training could then be made far more efficient than is now possible without severely restricting the time available for study.

You perceive that this might mean admitting a considerable proportion of students at 17 years of age. In a two-year college one would not welcome a large access of boys and girls, but in a three-year college one's fears might very reasonably be allayed. And here I am led to reinforce the argument for a three-year course by what seems to me a very weighty consideration. Even at 18, the students we admit come to us as little more than boys and girls, and of course one of our first cares is that they shall not be mere boys and girls when they leave us. We all know that there is only one way of compassing that end, and that is to throw upon them, as far as we may dare, the responsibility of government. Now in this vital matter, a three-year college is at an immense advantage as compared with a two-year college, because the seniority and the leadership of the third-year students are natural and indisputable. There you can get self-government at its best, and the tradition that makes a university course last at least three years answers, even if you are thinking only of moral and social training, to a thoroughly sound collective psychology. As to the tone and discipline of the two-year colleges, we need not rely upon our own opinions. It would be easy to quote the oft-expressed opinions of the long line of shrewd and able men who have inspected them, to the effect that the tone and discipline of those colleges are, generally

speaking, remarkably good of their kind. But after many years of experience in a prevailingly three-year college, followed by many years in a prevailingly two-year college, I candidly confess myself not a whole-hearted admirer of the two-year system, from the standpoint I am now discussing. *Esprit de corps* in a two-year college depends largely, I believe, upon the somewhat artificial seniority necessarily conferred upon certain second-year students, and upon the artificial and self-conscious (sometimes rather amusingly self-conscious) position of seniority assumed by the whole of the second-year students towards their juniors. They have come into their heritage too soon; or, to vary the metaphor, they have not yet sufficiently grown to the garment of authority: their new clothes are too big for them; but they perforce seek to convince themselves and to convince their juniors (in the case of the men often with a good deal of blustering insistence) that the fit is excellent. I think that the more sensitive one is to "atmosphere," the more readily will one admit that the general result is a more or less marked tendency towards either tyranny or priggishness, and I think that this tendency, though of course we may prevent it from becoming immediately serious, is practically inevitable in a two-year college. For the true collegiate spirit there must be a due proportion of unmistakably senior, i.e., third-year, students. The two-year system has done great things. A three-year course, even if it have, as I presume, no necessary connexion with the gaining of a university degree, could do far greater.

Let no one object that to call for a three-year course is to cry for the moon. Greater changes than that have been effected in our educational system within the last dozen years or so, and the ultimate effect of the war on educational expenditure is still uncertain. Meantime it is our business to make known, at any rate, what we want, whether or not it is destined to be realized in our time.

You will perceive that in a manner I have been carrying war into the enemy's camp. I do not wish to score a cheap point by reference to what London teachers have contemptuously called "guinea girls." But it is time to be on the alert when obscure hints are thrown out to the effect that a shorter period of training would suffice for what is called the "ordinary" elementary teacher. A year's training for a person who has already had the advantage of a college education is one thing. A year's training for an ex-student-teacher, who has not had that advantage, is quite another thing. The wide adoption of such a policy would mean that the vast majority of trained teachers would never have enjoyed the advantages of anything worth calling college life. If the inestimable benefits of that life are really to be secured for them, the period of training needs to be lengthened rather than shortened.

IX.

And now, to pass to another topic, I cannot omit from these speculations about the future of the training colleges a reference to a subject which in this connexion always lies near my own heart—I mean the future of the mixed colleges. The colleges for men and for women we have always with us. They need no defence and they call for no comment. But the mixed college may still be regarded

by many as on its trial. It is interesting to recall, as I did at an earlier point in this address, that certain of the older residential colleges began by receiving both men and women students. Precisely why the men and women were eventually separated I have not had time to enquire, but my strong impression is that it was not because the mixed system was held to have broken down. Possibly, however, in those Victorian days these colleges were never really mixed except in name, and if so, it would not have been surprising if the system had broken down. At any rate there followed a long period during which no mixed training colleges were established. Meanwhile, experience of the mixed system was being gathered in the local university colleges, though here we must again remind ourselves of the superior conditions which prevail where there is a strong section of third-year and even fourth-year students. And now, from the beginning of the twentieth century, the mixed training college is again being tried, chiefly by municipal authorities. Under what conditions, if any, is this type of college likely to become permanently fixed in the system? May I venture, though with great diffidence, upon a provisional reply to that question?

First and foremost, a mixed college should be really mixed, and should not consist for all practical purposes of two colleges which happen, for reasons of convenience or economy, to be housed in the same premises. To this end it is essential that among the men and women who constitute the staff there should be a thorough spirit of comradeship, arising out of that mutual knowledge which is the fundamental condition of mutual respect. Such a spirit can never be realized unless the very arrangements of the building and the organization of the work not only permit, but make it inevitable, that these men and women, all of them intent upon a common purpose, should have constant opportunities of discussing informally the endless procession of problems that present themselves in the working of any college, and of those special problems that ever and anon arise in a mixed college. I believe this to be the real key of the position.

Then as to the students. I venture to suggest that the one sure condition of failure is to set up a fence between the men and the women, perhaps allowing them sheepishly to peep over, and removing the fence only at rare intervals. If we are convinced that mixed colleges are possible, we must muster up the courage of our convictions, to the extent that we do not scent mischief directly we see a young man and a young woman talking together. Of course there are many precautions to be observed; but the greatest precaution of all is to see that the men and the women meet continually in their classes, and gradually imbibe that mutual respect that comes of friendly rivalry in the things of the mind. Incidentally it sometimes does a certain type of young man a world of good to find himself beaten by a woman, especially perhaps if it happens to be in the mathematical class. But that is not the most important thing. The most important thing is that these young people should become mutually interested in a variety of impersonal concerns, whether those of the class-room, or those of the college societies. That is the essential condition of a healthy life inside the college. As to what happens outside the college, if there were time I think I could show that there is no inconsistency in making such

arrangements that if the women have to travel northwards in order to reach their hostel, it should be inconvenient to the men to have to travel in any other direction than southwards in order to reach theirs.

I am not assuming that the mixed colleges stand in need of defence. But they are apparently supposed to be on their trial, and I am only indicating how in my belief they may hope to stand that trial successfully. If they do stand it successfully, the gains will surely be very great. As I can testify from much personal observation, it is no small gain that hundreds of young men who are going to be teachers should have come under the direct influence of such highly educated women as are to be found on the staffs of these colleges. This is a kind of gain which is perhaps of special importance in the times in which we live and are about to live. Again, having regard to those grave questions which concern the relations of the sexes, questions which go to the very foundations of the social structure, and which must to some extent affect the work of the teacher in the school and therefore of the lecturer in the training college, it is surely no small gain that, in addition to the many places in which educated and experienced men and women are separately considering those questions, there should be some in which they are considering them together. But in truth these are only stray illustrations, to which others could easily be added, of the reasons why many of us hope, as many of us ardently believe, that, provided we can be careful and discreet, without being fussy and suspicious, human nature is quite equal to the strain imposed upon it in the life of a mixed training college.

X.

In conclusion, I should fail in my duty if I sat down without referring to the parlous plight to which the war has temporarily reduced the men's colleges. The facts are too notorious to need description. We ought, however, even now, to emphasize the enormous importance of securing that those colleges should resume their normal activities as soon as possible after the declaration of peace. In the first year of the war, no one could help noticing the gloom which existed, even in high official quarters, regarding the future of education generally, and of the training colleges in particular. Fortunately, wiser counsels seem to be prevailing now, though it certainly behoves all friends of education to remain ever on the alert, lest the policy of drift should after all prevail. The fate of the men's training colleges is bound up with another question which we English people cannot regard as of small account. It would probably be as little to the liking of Englishwomen as to that of Englishmen that teaching should become, in an altogether predominant sense, a woman's profession. We should probably agree that there is no branch of the public service in which it is more essential that men and women should work together than in the education service. Even before the war there was by no means a high proportion of men teachers. Hence the vital importance of seriously regarding every training college for men which was doing good and sound work before the war as, though dormant, still alive, and ready to prove its vitality as soon as the blessings of peace shall return.

A NEW METHOD FOR THE INVESTIGATION OF INTELLIGENCE.

BY PROFESSOR A. NETSCHAJEFF.

ONE cannot help noticing, while studying different methods of experimental investigation, that all the plans of investigation into the psychology of children which have been offered hitherto are little more than arbitrary combinations of separate inquiries, without any organic connexion between them. As a rule, each investigator points out which sides of the psychological life of a child are to be studied, and recommends for this purpose a whole sequence of particular researches, yet in many cases there would have been no loss to the "system" of investigation if one of its parts had been omitted and another analogous one put into its place.

For instance, if the crossing out of letters, which is used by Pizzoli for the investigation of attention, had been substituted for stencilling, which is used by G. T. Rossolimo, and vice versa, neither of these programmes would suffer in their essential parts.

Taking this into consideration, I have tried to construct a new method for the investigation of the intellectual life of the child. As a basis I desired to observe the successive development of one of the compound intellectual processes, beginning with the very first moment of receiving an impression and finishing with the manifestations of the creative imagination.

The outward form of the experiments may be summed up under the following eight fundamental heads:—

I. PRELIMINARY QUESTIONS TO THE PERSON UNDER INVESTIGATION.

Before the beginning of the experiment the following facts were registered:—

1. The name of the person.
2. His age.
3. His usual occupation.
4. The state of his health on the day of investigation.
5. How he slept the previous night (whether he overslept or was wakeful, if his sleep was calm or troubled).
6. His digestion.
7. The approximate amount (in hours and minutes) of work during the day of investigation—physical (its form, gymnastics, manual labour, walking) and mental.
8. His mood on the day of investigation.
9. Special notes (physical defects, illnesses, &c., which might have affected his organism).

II. EXPERIMENTS WITH A TACHISTOSCOPE.

The person under investigation was placed before a special tachistoscope of a new construction, arranged so as to show not only cards but larger objects also. The aperture of this apparatus was rapidly opened and shut again, showing for a very short time the object which was behind it. The time of exposure was at first less than 0.01 seconds. The person under investigation had then to give an account of what he had seen. The time of exposure was now gradually lengthened till the impression gained was sufficiently distinct.

Several objects were shown to the person one after another, chosen with a view to attract the attention in different directions. As an example the following may be given:—

1. An open purse with three divisions, containing coppers, a postal order, and some tramway tickets of different colours.
2. A coloured portrait of Rembrandt.
3. A teacup with a design of pink flowers on a blue ground.
4. Three pine branches with two cones growing on them.
5. A pink ikon-lamp (a very small sanctuary lamp) with a whitish pattern on it.

III. THE COMPARISON OF THE OBJECTS JUST SEEN WITH THOSE ALREADY KNOWN.

After the person under investigation has received through the tachistoscope the collective impression of these five objects, each of them was placed separately before him. He was asked to pay special attention to the colour of the object and say whether it reminded him of the colour of anything else.

In the same way he was asked to compare this object with other things resembling it in *form*, or which aroused in him the same *emotions*.

His answers were written down, and the object which had been dealt with was taken away immediately.

IV. ENUMERATION OF THE OBJECTS WHICH HAD BEEN JUST SHOWN.

The person was asked to enumerate from memory all the things which had just been shown to him.

V. THE DESCRIPTION OF OBJECTS WITH THE HELP OF LEADING AND MISLEADING QUESTIONS.

The person was asked to describe all the five objects from memory, five leading and one misleading questions being asked about each object.

As an example the following sequence of questions may be given:—

Object No. 1. (A purse.)

1. What was the colour of the purse?
2. What was the colour of the lining?
3. How many things were there in the purse?
4. What was the colour of the contents?
5. How were these things arranged?
6. Where was the 20-kopeck piece? (There was no such coin.)

Object No. 2. (A portrait of Rembrandt.)

1. Who was represented in this picture?
2. From where you were sitting, was the face turned to the right or to the left?
3. On which side was the brim of his hat turned up?
4. How many feathers were there in the hat?
5. How many eyes could you see?
6. Where was the yellow bow? (There was no such thing in the picture.)

Object No. 3. (A teacup.)

1. What was the ground colour of the cup?
2. What was drawn on it?
3. How many flowers were there on the cup?
4. What was the colour of the handle?
5. What was the shape of the handle? Draw it.
6. Where was the butterfly? (Question which suggests only an illusion of memory.)

Object No. 4. (A pine branch.)

1. How many branches were there?
2. How were they placed?
3. What was their relative size?
4. How many cones were there, and how were they arranged?
5. What was the shape of the cones?
6. To which cone was a beetle attached? (There was no beetle.)

Object No. 5. (A small ikon-lamp.)

1. What colour was it?
2. Describe the character of its pattern. Draw it.
3. What colour were the little rings in the pattern?
4. Try to remember how many (horizontal) rows of rings there were?
5. Describe the colour and shape of the foot of the ikon-lamp.
6. Where was the crack in the lamp? (Question which suggests an illusion of memory.)

All the answers were registered word for word.

VI. EXPERIMENTS WITH ASSOCIATION.

As a basis for associations the following were used:—The names of the five objects whose impression had just been received. On hearing the name the person had to say directly the first thing which was suggested to his mind by the word just heard. The time of each process was measured by means of a stop-watch.

VII. FORMING OF SENTENCES.

Two objects (those above-mentioned in Exp. II) were shown simultaneously, viz., the purse and the ikon-lamp; the portrait of Rembrandt and the pine-cones; the teacup and the ikon-lamp; the purse and the portrait of Rembrandt; the teacup and the pine-cones.

The person under investigation had to form a sentence, which would refer to these objects, every sentence being instantly repeated aloud by the investigator.

VIII. RECOLLECTION OF SENTENCES.

The person under investigation had to recollect all the sentences formed by him in Exp. VII. The time necessary for remembering these sentences was measured by means of a stop-watch.

What individual peculiarities could have been brought out by the procedure thus outlined?

In order to answer this question, I shall analyse the principal data which we received at each of the above-mentioned experiments.

As an illustration, I shall avail myself of the results of investigations which were made by me in 1913-14 on 18 teachers in Petrograd.

EXPERIMENTS WITH THE TACHISTOSCOPE.

The chief idea of these experiments was to give the general character of the perceptual powers in the person under investigation.

As is well known, a tachistoscope enables one to follow the separate degrees in the visual perception of a given object, the exposure of which has been for varying periods.

Our inquiry brought out three typical forms in the process of perception which we called *objective*, *illusive*, and *critical* forms of apprehension. Those processes which had no typical signs we called *indefinite*.

Under the *objective* form of apprehension we meant all the cases when the process of perception was determined by the outer stimulus.

The answers which the person under investigation gives as he gets the gradually lengthened impressions of the objects are nothing else but the detailed descriptions of the object exposed.

One gets an impression as if the man's mind is a kind of sensitive film, on which the impression is gradually but definitely developing.

As an example of an objective form of apprehension, the following extracts from the records may be given:—

In the opening of the tachistoscope was exhibited object No. 1 (a purse). According as the time of perception had been gradually lengthened the person under investigation—No. 6, 28 years old—gave the following answers:—

- (a) Something of whitish-yellow colour which is scattered about.
- (b) The same, black spots on the white ground. Three spots on the left-hand side.
- (c) It seems as if there were more of them.
- (d) Square white spots (right-angled). Black writing.
- (e) It seems as if they were arranged in a row.
- (f) The same, but more distinct.
- (g) I think it was a purse.

Object No. 2 (a portrait of Rembrandt).

- (a) A painting of a man's figure.
- (b) Like a Spaniard.
- (c) A man.
- (d) A man with a hat on his head. Feathers in his hat.
- (e) The same hat more distinct. (Person No. 15, 41 years old.)

Object No. 3 (a cup).

- (a) I think it is a cup.
- (b) The handle is on the right-hand side from me.
- (c) Of white colour—with flowers, I think.
- (d) Again a cup.
- (e) The handle is not quite plain—a small projection on the top.
- (f) At the bottom the handle is divided into branches.
- (g) The cup is white, with a design.
- (h) There are flowers on the cup.
- (i) The same.
- (j) A big flower occupies the left half.
- (k) There is something greenish higher up. (Person No. 6, 34 years old.)

Object No. 4 (pine branches).

- (a) Like a little bush. Like a plant which grows in different directions.
- (b) It seems to be lying now. Before, it stood.
- (c) Yes, it is lying and growing in different directions.
- (d) It is (very) difficult to define. A little branch of a fir-tree or something of that kind.
- (e) More probably it is a little branch of fir. It seems as if there were a fir-cone at the back.
- (f) As if another branch is standing at the back, but it is not distinct.
- (g) The impression is the same; one branch is standing and another is lying on the right-hand side. (Person No. 17, 34 years old.)

Object No. 5 (an ikon-lamp).

- (a) Something which is narrow at the bottom and wider at the top. Something coloured.
- (b) An ikon-lamp. White at the bottom; little glass balls, transparent.
- (c) One can see white and red colours. The sides are white and transparent.
- (d) On the sides white and red colours join.
- (e) At the bottom, on the foot of the lamp white and red.
- (f) The balls are white; little stripes go from one to the other.
- (g) The same. The foot is covered with white and red stripes.
- (h) The lamp is red, and the rings on it are white. (Person No. 17, 34 years old.)

The *illusive* form of apprehension is characterized by illusions which arise quickly and remain in the mind tenaciously. There is a marked absence of criticism.

Under the influence of the first dim impressions the person under investigation builds up a definite conjecture, forms in his mind a definite idea, and subordinates separate data of perception to this idea.

The following examples of the illusive form of apprehension may be cited:—

Object No. 1 (a purse).

- (a) Yellowish card, on which are represented a church and a ploughed field.
- (b) A purse made of yellow leather; fastens by two knobs; only part of it is visible.
- (c) The same purse, but it is moved further on; it is shut.
- (d) Something white is lying in front of the purse.
- (e) It is like money, but looks more like paper.
- (f) It looks like silver money—like a 10-kopeck piece.
- (g) Many silver pieces.
- (h) The purse is more distinct now. There are about 12 pieces; they are about the size of a 50-kopeck piece.
- (i) They are more distinct, but they lose the shape of money.
- (j) A little heap of tramway tickets, but money is still there above them. (Person No. 13, 28 years old.)

Actually, there were no silver pieces in the tachistoscope.

A more characteristic case of illusive form of apprehension occurred at the exposure of Object No. 1 (a purse). The following answers were given by Mrs. B., age 35 years:—

- (a) Something on the table. A kind of a pie of yellow colour. Something is sticking out at the side.
- (b) More objects. Clay-colour. A boiler with a lid.
- (c) The same. Something else, glittering.
- (d) More details. Household china.
- (e) China. Two things: one of them is big; an earthenware cup.
- (f) There is a cup with a lid at the back. A green plant is sticking out in front.
- (g) Nothing new. No green.
- (h) A table laid for a meal.
- (i) There is something greenish and reddish on the white. Dishes.
- (j) Again something greenish and reddish.
- (k) There is one big cup with a lid at the back.
- (l) There is something green on the white.
- (m) A small soup-tureen, a plate.

The following form of illusive apprehension was noted at the exposure of Object No. 2 (portrait of Rembrandt):—

- (a) A little head.
- (b) A woman's head.
- (c) The same. The face is more distinct.
- (d) The same.
- (e) The same.
- (f) I see a woman's head quite distinctly.
- (g) I think I saw a hat with a feather.
- (h) An open neck. The shoulders are slightly seen.
- (i) The same.
- (j) The same.
- (k) I doubt whether it is a woman's head.
- (l) The features are coarse.
- (m) No, it is not a woman's head; it is rather a man's. (Person No. 11, 34 years old.)

At the exposure of Object No. 3 (a cup) amongst this group of teachers, there was no illusive form of apprehension. I cite, therefore, an example in a boy of 7, who, at the exposure of the cup, gave the following replies:—

- (a) A whale swallowed something like Meduza.
- (b) There is a Meduza in its mouth, and blood round it.
- (c) A real Meduza.
- (d) A jug in the whale's mouth.
- (e) A jug, and something is added to it.
- (f) The handle has grown bigger.
- (g) The handle is lower now.
- (h) Something is looking down from above.

At the exposure of Object No. 4 (pine-cones), another case of illusive form of apprehension was registered:—

- (a) Like a laurel branch.
- (b) The branch is seen slightly.
- (c) The impression is the same, but I think it is not a laurel branch.

- (d) In the right-hand corner the shadow of a little flower. The branches remind me of needles. The flower is pansy.
- (e) I see distinctly that the flower is on the right-hand side. The edges are light and the middle is dark. Like a pansy.
- (f) I see distinctly a bunch in the shape of a cockade. It is standing like a little fir-tree. The flower is the same.
- (g) The flower is like velvet. Darker than the plant.
- (h) The flower is dark violet; perhaps it is a garden pansy, or perhaps it is wild.
- (i) The petals are interwoven. Fir-cones. (Person No. 4, 28 years old.)

At the exposure of Object No. 5 (an ikon-lamp), there was no example of illusive form of apprehension. Answers can be taken from another group. A girl of 13 answered thus, at each exposure:—

- (a) I have just caught a glimpse of a little doll in red.
- (b) A little doll with gold buttons; a little clown.
- (c) The same. A little doll in red. A little clown.
- (d) What a dreadful face! It is not a clown now. The face is drawn.
- (e) The same little clown, but it is not standing, it is sitting. The dreadful face has disappeared.
- (f) The little clown is standing. In front of him an empty cotton-reel.
- (g) He is sitting, and the same reel is before him.
- (h) He is sitting on it with his back to me.
- (i) The same clown is sitting. Before him is the same reel.
- (j) He is sitting with his legs stretched out.
- (k) He is sitting on the floor; he has stretched out his legs. There is no reel.
- (l) He is sitting with his face to me.
- (m) The same.
- (n) An ikon-lamp with little white flowers. I have not seen it before.
- (o) It is quite distinctly an ikon-lamp. It is red with little white flowers. The foot is red with white stripes.
- (p) It has a wick and oil in it.

Besides these two forms of apprehension—objective, illusive—we also spoke of *critical*.

Under the critical form of apprehension, we meant all those cases when the process of apprehension was defined by conjectures which were controlled by objective data. In the person's mind the objective and illusive forms come one after another in turn, the first of which controls the second.

Examples.

At the exposure of Object No. 1 (a purse), the following answers were given by Person No. 5, 32 years old:—

- (a) Something like a house.
- (b) It is difficult to see. Something reddish.
- (c) Something red and oblong.
- (d) The same.
- (e) Like an inkstand.
- (f) A transparent object.

- (g) I cannot see clearly what it is. White, red, and dark colours.
- (h) An open book.
- (i) A lady's handbag with cards.
- (j) The same. Brown inside.
- (k) A handbag or a long purse. Cards falling out of it.
- (l) A purse. White cards. Six of them. One of them is straight in front of me, the others are on each side.
- (m) They are white.
- (n-p) The same.
- (q) An open handbag with six white cards.

The following answers were given at the exposure of Object No. 2 (portrait of Rembrandt). (Person No 6, 34 years old.)

- (a) Black spot.
- (b) A small head. Perhaps a woman's head.
- (c) Some kind of a head.
- (d) On the top either feathers or a lady's coiffure.
- (e) The same. Either lady's head or a head with a big hat and with a feather. Perhaps a man's head.
- (f) Evidently a man's head and a big hat with a feather.
- (g) A man's head. A big hat, from the Middle Ages I think.

Object No. 3 (a cup). (Person No. 5, 32 years old.)

- (a) A white earthenware mug, cylindrical form.
- (b) More likely a cup, white with blue flowers, I think.
- (c) A cup. Light-brown flowers. The leaves and the flowers are of the same colour.
- (d) The leaves are brown.
- (e) Yes, brown, and also green, I think.
- (f) The same cup with the same design.

Object No. 4 (a pine-branch). (Person No. 1, 14 years old.)

- (a) Something dark, with light stripes in all directions.
- (b) Something like a ball of wool. Fur from a muff or ruffle, perhaps.
- (c) The same.
- (d) I cannot make it out.
- (e) As if it were the end of a fir or pine-branches.
- (f) As if there were a little cone at the top.
- (g) A branch of a fir-tree.

Not a single case of typical critical form of apprehension could be registered in the group just described.

The drawing of the line between the illusive and critical forms of apprehension is defined by the relative permanency of illusions, and by the comparatively easy destruction of the illusions.

Those forms of apprehension which were difficult to put under the heading of objective, illusive, or critical forms we called *indefinite*.

To this group also belong those cases when the process of perception was developing so quickly that it was not possible to register their most typical moments. While analyzing the results of experiments with the tachistoscope, we also took into consideration the person's tendency to illusions. It was not our object to count all illusions which the person under investigation might happen to have. We only state whether there were illusions or not.

The general result of all experiments just described is given on Table I (O—objective form of apprehension; I—illusive form;

C—critical form; *Indf.*—indefinite form. The processes of perception with illusions are marked by the sign *).

TABLE I.

No. of persons under investigation.	Their age.	Objects.					Total.				In how many processes of illusions were observed.
		1 Purse.	2 Portrait.	3 Cup.	4 Branch.	5 Ikon-lamp.	O.	I.	C.	Indf.	
1	41	Indf.*	Indf.*	Indf.*	C*	Indf.	—	—	1	4	4
2	27	C*	Indf.*	O	I*	O	2	1	1	1	3
3	30	O	Indf.*	Indf.*	O	O	3	—	—	2	2
4	28	O	Indf.*	O	I*	Indf.*	2	1	—	2	3
5	32	C*	C*	C*	C*	Indf.	—	—	4	1	4
6	34	O	C*	O	C*	O	3	—	2	—	2
7	32	O	Indf.*	O	Indf.*	O	3	—	—	2	2
8	33	O	O	Indf.*	O	O	4	—	—	1	1
9	47	O	I*	O	C*	Indf.*	2	1	1	1	3
10	38	O	I*	O	Indf.*	Indf.	2	1	—	2	2
11	34	O	I*	Indf.*	O	O	3	1	—	1	2
12	26	Indf.*	I*	O	Indf.*	O	2	1	—	2	3
13	28	Indf.*	I*	Indf.*	Indf.*	Indf.*	—	2	—	3	5
14	31	O	Indf.*	Indf.	Indf.	Indf.	1	—	—	4	1
15	41	O	O	O	C	O	4	—	1	—	—
16	52	C*	O	Indf.	O	Indf.*	2	—	1	2	2
17	34	O	Indf.*	O	O	O	4	—	—	1	1
18	39	C*	C*	Indf.*	Indf.*	Indf.	—	—	2	3	4
Total	O	11	3	9	5	9	37	8	13	32	44
	I	1	5	—	2	—	Total.				
	C	4	3	1	5	—					
	Indf	2	7	8	6	9					
In how many processes of illusions were observed ...		7	15	7	11	4					

COMPARISON OF OBJECTS JUST SEEN WITH THOSE ALREADY KNOWN.

At the end of the experiments with the tachistoscope, all the objects which were exposed were shown to the person under investigation, and each of these objects was named (purse, portrait, cup, branches, ikon-lamp), and the person was asked to say what other thing it was like in respect of colour, form, and accompanying emotion.

The enquiry was made in this wise: "Here is the purse. Notice its colour. Does its colour remind you of anything else? Now, look at its shape. Does the outline of it remind you of any other thing? Does its appearance arouse any special feeling? Do you like looking at it or not? Can you think of other things which are associated in your mind with the same feelings? Do you know other objects the appearance of which you like or dislike?"

The time for answers was unlimited.

At the end of this experiment, while noting the total result, special attention was paid as to whether any real comparisons were made. Such answers as "The object is like itself" ("reminds me of itself") were considered to be no answers at all.

From Tables II—V one can see the individual peculiarities of the persons under investigation.

TABLE II.—COMPARISONS MADE AS TO COLOURS.

No. of person	Purse.	Portrait.	Cup.	Branch.	Ikon-lamp.	Total
1	Velvet.	Portfolio.	A shirt.	Cloth.	Weak jelly.	5
2	—	—	Lilac.	Flower bed.	—	2
3	—	—	Mousatoff's portrait.	—	Salmon.	2
4	—	—	Little flowers.	—	A little cup.	2
5	Lady's bag.	—	Sky.	Children's Christmas tree.	Little flowers.	4
6	—	Lady's dress.	Dishes and plates.	Sea-shore.	An old thing from my grandfather's house.	4
7	Leather.	Picture at an exhibition.	—	Cider.	A cup.	4
8	Chestnut.	My picture.	Tea things.	Living plants.	—	4
9	—	Another picture.	A picture.	Forest.	A saint's halo.	4
10	Stone.	A picture.	Sky.	Forest trees.	A flower.	5
11	—	Dark weather.	—	Plants.	—	2
12	Travelling trunk.	A bird.	Flower saucer.	Trees.	Lamp-shade.	5
13	Lady's Bag.	—	Carnation.	Dirty bark.	A curtain.	3
14	Programme.	Oil painting.	—	Woods.	An apple.	4
15	Glove.	Artistic works.	Teapot.	A familiar branch in the garden.	—	4
16	—	Peter I's portrait.	—	A Christmas tree thrown away into the yard.	Toilet set.	3
17	—	Shoes.	—	A Christmas tree from which all the trimming has been removed.	—	2
18	Tortoise.	A friend's hat.	Bonnet.	—	Another ikon-lamp.	5
Total	10	13	13	15	13	64

TABLE III.—COMPARISON MADE AS TO FORM.

No. of person	Purse.	Portrait.	Cup.	Branches.	Ikon-lamp.	Total.
1	An open travelling trunk.	A box.	An ikon-lamp.	A lady's cockade.	A lantern.	5
2	A cigarette case.	—	—	Material.	Telegraphic insulator.	3
3	—	—	—	Cut paper.	—	1
4	A little bag.	An Italian.	—	Fir-tree.	—	3
5	—	A lady.	A garden.	Pine-woods.	A church.	4
6	Another purse.	—	—	—	—	1
7	—	A hero of the "Three Musketeers.	—	Pine-tree.	A flower.	3
8	A lady's hand-bag.	A painter's canvas.	—	—	—	2
9	Paper-weight.	A picture in a frame.	My cup.	Paper-weight.	—	4
10	Cigarette case.	A board.	China household crockery.	Projecting branches in forest.	A wine-glass.	5
11	—	Ancient style.	—	—	My ikon-lamp.	2
12	A newspaper boy's bag.	A knight.	An ikon lamp.	A palm.	A cup.	5
13	A bag for paper.	Portfolio.	My dinner-set.	A husk.	A vase.	5
14	A travelling trunk.	A lady.	A tea-pot.	A tail.	A paper frill for flowers.	5
15	—	A quadrant.	A little vase.	A forest.	—	3
16	—	A lady's hat.	Another cup.	—	—	2
17	—	Armour.	My daughter's cup.	A General's plume (cockade).	An ikon-lamp in church.	4
18	A familiar purse.	A girl-friend.	My daughter's cup.	A fir-tree.	My father's ikon-lamp.	5
Total	11	15	11	14	11	62

TABLE IV.—COMPARISONS MADE AS TO FEELING.

No. of person	Purse.	Portrait.	Cup.	Branches.	Ikon-lamp.	Total
1	My son's purse.	Old age.	—	Woods.	A church.	4
2	—	—	—	—	—	—
3	—	Series of Rembrandt's pictures.	—	—	—	1
4	—	—	—	A flower.	A burning ikon-lamp.	2
5	Arranging of tickets.	A picture.	A glass.	Pine scent.	—	4
6	—	Disagreeable face.	A bower.	A sea-shore.	Things seen in childhood.	4
7	Payment of money.	Peter the Great's bravery.	My cup.	A landscape.	—	4
8	Buying of tramway tickets.	A great artist.	A broken cup.	The beauty of Baikal.	—	4
9	—	A hero.	A pretty woman.	A walk in the woods.	An ikon.	4
10	Payment of money.	—	Drink.	Hunting.	An ikon.	4
11	—	Two of my engravings.	—	A country house.	Church service.	3
12	Packing for a journey.	Mephistopheles.	A garden of flowers.	An autumn garden.	A lamp-shade.	5
13	A schoolboy's purse.	Peter I's portrait.	Coffee.	A night in the woods.	Religious atmosphere.	5
14	Being without money (penniless).	Peter I.	Coffee.	Scent of the woods.	An ikon.	5
15	—	—	—	Fresh air.	An ikon.	2
16	A frog.	—	—	Funeral procession.	An ikon.	3
17	—	—	—	—	—	0
18	The 20th of the month.	A definite former joy.	A daughter.	Children at a Christmas tree.	My childhood.	5
Total	10	12	10	15	12	59

TABLE V.
TOTAL OF COMPARISONS.

Comparisons	Number of Persons.																	
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
As to Colour.....	5	2	2	2	4	4	4	4	4	5	2	5	3	4	4	3	2	5
As to Form	5	3	1	3	4	1	3	2	4	5	2	5	5	5	3	2	4	5
As to Feeling	4	0	1	2	4	4	4	4	4	4	3	5	5	5	2	3	0	5
Total.....	14	5	4	7	12	9	11	10	12	15	7	14	13	14	9	8	6	15

(To be continued.)

ON THE CATCHING OF MEN.

By PROFESSOR H. BOMPAS SMITH, The University, Manchester.

One effect of the war has been to stimulate the progress of our national mind from childhood to adolescence. We are passing through a period of self-criticism; we are endeavouring to obtain a fuller and more conscious control of our national life; our minds are filled with high ideals for the future. It is not without significance that for the first time in our history we have a Reconstruction Committee of the Cabinet. Moreover the reconstruction which we now desire is not simply a change in the external organization of our common life; it involves also an alteration in our habits of thought and feeling. We desire that our people should realize more fully their membership of the nation, that they should become more scientific in their thinking, and at the same time more ready to use their increased abilities in some service of national importance.

But changes such as these must be accomplished largely by education, and we find a new insistence upon the necessity of educational reform. It seems probable that the nation will be prepared to pay more freely for the education it desires, and in any case parents and employers, statesmen and journalists, social reformers and religious leaders, are showing a marked interest in education and a stronger faith in the benefits it can bring.

A situation which is so full of possibilities for the future of our schools and universities makes it, I think, appropriate for us to join in the work of self-examination, and I propose to suggest for your consideration some criticisms of the methods by which the training of teachers has been conducted in the past. I can of course deal with only a small part of the subject, and my purpose is not to propound new and startling theories, but rather to inquire whether we cannot give more practical effect to some principles which most of us accept. To prevent any misconception I would add that it is primarily my own practice which I have in mind.

The particular point which I shall ask you to consider is one to which the war has urgently called attention. We may, perhaps, describe the difference between the mental attitudes characteristic of Germany and England by saying that, of the two interrelated aspects of any organized system of life or thought, the aspect of coherence appeals specially to Germans and the aspect of comprehensiveness to Englishmen. By accepting as the ultimate aim the promotion of Germany's greatness, German national thought and feeling and action tend to acquire a large measure of coherence. But, as we hold, this aim is not a comprehensive one because it does not cover all the great human interests. For example, it takes insufficient account of man's interest in the moral law. England, on the other hand, stands on the whole for comprehensiveness. Our national mind is less coherent than that of Germany, and our organization is inferior, but we claim that our ideals do fuller justice to the fundamental interests of mankind.

One lesson we are learning from the war is that comprehensiveness without coherence is like faith without works, and that we have need of better organization and greater concentration of effort if our ideals are to prevail against the narrower ambitions of our foes. That this lesson is well worth learning I need not here insist, but I would call your attention to the danger of learning this lesson and at the same time forgetting that while coherence is essential it is second to comprehensiveness. Life is not circle but a parabola, and William James' Chautauqua was not an exciting town. I believe that the special temptation to which our national mind is now exposed is the temptation to abandon our characteristic point of view for that of our opponents, to trust in industrial prosperity, state action, and scientific modes of thought, and to forget that these necessary things are means for the attainment of wider ends.

The tendency to overestimate coherence appears in the field of education partly in an undue faith in administrative action, in state organization, in changes in the curriculum, and in Montessori and other "methods." We want not less of these things but more, only in themselves they are dry bones which will not live unless the breath comes upon them from the four winds of heaven. Again, the same tendency is seen in attempts to achieve coherence of

educational thought and action by concentrating attention upon one element in the educational ideal to the comparative neglect of others. Lord Haldane and Dr. Gray appear to demand an educational reformation primarily in order that English trade may be more prosperous, and we are not infrequently told that the aim of education is to train good citizens. But surely good citizens and efficient workmen must be trained as part of the process of developing good men. The unity of our educational aim cannot be less comprehensive than the unity of human personality.

In the course of our self-examination the question, therefore, naturally arises whether we too have been infected by this tendency to over-estimate coherence apart from comprehensiveness. Do we ever lay stress upon a knowledge of processes and methods, whether in teaching or psychology or history, as if such knowledge were of value in itself? Do we ever concentrate upon the training of the teacher as such and nothing more, instead of trying to train the teacher as a man? We are all aware it is easy to do this, and should probably agree that in the past the schools have distrusted the training colleges largely because of their impression that the training given by the colleges was too academic, too remote from the realities of school work. You will remember that that great teacher, Edward Bowen, opposed the training of masters for the public schools on the ground that a public school master was not so much an instructor as a moral or inspiring force, and as such could not be trained. We may differ from his conclusion and yet accept his minor premise.

You will probably agree also that the most notable improvement in our training colleges during recent years has been due to the effort to avoid the danger of unreality due to narrowness of aim. I feel, however, that in my own case, and probably in that of certain others, our efforts have met with incomplete success. Some of us, I am sure, still think too much of the teacher in the class-room and too little of the man outside its walls, but this is a criticism which I cannot now consider. We will confine ourselves to the work of teaching in the narrow sense, and ask how far we give a suitable training for this work. Even within this limited field a number of questions immediately confront us, such as the question of the relation of theory and practice, and of the colleges to the schools, with which we cannot deal. I shall speak only of the theoretical instruction which the training colleges can give.

The kind of teacher we want to see is the teacher who is before all things a human being, interested in his boys as individual persons, able to create an atmosphere of friendly and strenuous co-operation for the attainment of ends desired by all. Technical skill is most important because without it the personalities of the teacher and the taught cannot find their free expression. But humanity is the one thing needful. "It is more important," says Professor Campagnac, "to be a human being, and to remain that, than to be a teacher. The only justification for a teacher is that he is one of a particular kind of human beings who realize their humanity in the form of that profession. If all that can be said of him is that he is a teacher of a particular sort, then he is a thin abstraction and hardly deserves to be thought of."¹

¹ *A Theory of Education*, p. 124.

I recall this commonplace because its frequent repetition has not impaired its truth or value, and we must further remind ourselves also of the complementary truth on which we all no doubt as constantly insist, viz., that the teacher's personality is so important because it is the organ or vehicle of ultimate reality. He teaches not according to his own individual wishes, but makes himself as far as in him lies the medium of a higher will. This attitude both gives him the assurance and certainty he needs and also saves him from that intellectual or moral self-sufficiency which might lead him to treat his boys as in principle inferior to himself.

If, in the light of this general conception of the teacher whom we desire to train, we examine the kind of training which we give him, the result appears to me not wholly satisfactory. I am throughout assuming that the technical knowledge now given is important, and I am also glad to think that others are more successful in their methods than I am myself, but it is not easy to believe that the teaching given in most training colleges does full justice to the point of view just outlined. Their teaching may be coherent; I doubt if it is sufficiently comprehensive. But instead of criticizing in detail my own or other methods I will try to indicate the subjects which to my mind the ideal college ought to teach and the general mode of treatment, premising that I shall speak only of a kind of standard course to be taken by the general run of students. Wide scope would be given for individual variations. Subjects would be carried further or in some cases omitted according to the students' special needs.

Theoretical instruction would of course be only one of the means employed to help the students to realize the point of view described, but it would be a principal object of this instruction to enable them to conceive their work as teachers as at once a human and a spiritual process. For this purpose the college would endeavour to stimulate the students' interests both in the relation of their work and aims to the fundamental realities of life, and in their boys as human beings. In the first place, therefore, the college would provide a course in the elements of philosophy and more particularly of ethics. Upon the need for such a course and the great possibilities of usefulness it would offer it is not necessary to enlarge. We have all been reading Mr. Clutton-Brock, and I shall not attempt to repeat his arguments for the importance of philosophy.

But further, my ideal college would make a definite effort to develop the teacher's inborn interest in his boys. The existence of this interest must be assumed; if a man is not interested in boys he clearly ought not to think of teaching. The development of this interest would be primarily promoted by actual intercourse with living boys, but it might be assisted by a suitable course in psychology and sociology. The great benefit which can be derived from an elementary study of psychology is an increased capacity for understanding the boy's point of view. It helps us to see why the boy behaves in the way he does and prevents us from judging him by a hard and fast standard, applicable, if at all, only to adults. In the old days, if a boy did not know his lesson, the short and easy method was to cane him; now we know that the right treatment of his failure depends upon a careful diagnosis of his

case. We have probably all proved by experience that psychology can in fact stimulate the sympathetic imagination of our students, only it must be psychology of the appropriate kind; it must be a psychology based upon our experience of actual boys and must deal with them primarily as persons. The detailed analysis of the mental processes is of little value for our purpose except in so far as it is needed for the explanation of the boy's everyday behaviour, or for the sake of some important practical application. "It is only the fundamental conceptions of psychology," says Wm. James, "which are of real value to the teacher."¹ What text-book would be used in my Utopia I do not know. It has not yet been written, but it would I think remind its expert readers of Freud rather than of Stout.

The course in sociology, which would not be a long one, would supplement that in psychology by developing the students' interest in the social phenomena both of the school and of the environment in which they and the boys pass their lives. The treatment would be on the same general lines as those just indicated, and the central purpose of the course would be to help the student to understand his boys by increasing his insight into the social forces which exercise so potent an influence upon them. Psychology and sociology alike would be interpreted by philosophy; the significance of the phenomena with which they deal is not in the phenomena as such, but in the bearing of these phenomena on human life, that is, ultimately, upon the spiritual progress of men and women as individuals and as members of society, or rather as both at once.

My college will also provide a course on the history of education, as the story of the development of one of the great interests of mankind. About facts and topics of antiquarian interest the students will hear little. It really does not matter much to them what Locke or Herbart said about the teaching of Latin grammar. What is important is for the students to share the spirit of the great teachers of the past and to learn something of the great systems of education by which men in different ages have attempted to make their children better than they were themselves. In this way the students will gain a wider view of the conditions under which their own work will be conducted.

Lastly, I come to the instruction which will be given on the technique of teaching, and here the methods of my college will be typical of the changed outlook which I have assumed will be adopted. It is in our present method lectures that our one-sided emphasis on coherence is perhaps most clearly seen. The Herbartian steps are, I trust, now disappearing from the programme, but the attitude they represent is still too common. I mean that attention is concentrated upon the framework of the lesson, upon the process and mode of presentation, in fact upon coherence taken by itself. Of course the subject matter receives recognition, but I think that the realization of the lesson as a bit of living human intercourse is imperfect in two ways, both characteristic of the coherence point of view. First, the procedure is apt to be governed by authoritative rules which tend to be regarded as valuable in themselves, and which have not become part and parcel of the teacher's personality. Hence, secondly,

¹ *Talks*, p. 7.

these rules, instead of being taken for granted during the lesson, are consciously present in the teacher's mind. I do not dispute the necessity for rules of method and for recalling them occasionally in the middle of a lesson. But before considering their true function I should like to emphasize the paramount importance of remembering that a lesson is primarily a time of personal intercourse and co-operation, and that because the process is so personal and human it is also spiritual and supra-social, controlled by the realities with which it deals and open also to the guidance of the spirit that bloweth where it listeth. "Real teaching," says Professor Campagnac, "consists in this and nothing less than this: it is a building up, partly with the skill of well-directed effort but partly also without premeditation, and as the free and generous gift of heaven, of a common experience shared by teacher and pupils, a thing neither his nor theirs, but a fresh impulse of life which comes and enriches both, as two minds and hearts come into contact, as two worlds strike one another and break and dissolve and become a larger world than either was before."¹ The work of teaching is essentially a form of artistic creation, and the better our teaching the more vivid is the feeling that the result is not the fruit of our own skill or knowledge. "The work of a great artist," says Mr. W. J. Locke, "is not that before which he stands, and, sighing, says: 'This is fair, but how far from my dreams!' That is the popular fallacy. The great work is that which, when he regards it on completion, causes him to say in humble admiration and stupefaction: 'How on earth did the dull clod that is I manage to do it?' For he does not know how he accomplished it. When a man is conscious of every step he takes in the execution of a work of art, he is obeying the letter and not the spirit: he is a juggler with formulas; and formulas, being mere analytical results, have no place in that glorious synthesis which is creation—either of a world or a flower or a poem,"² or, I would add, a lesson.

What, then, you will say, is the use of formulated methods of teaching or of careful preparation? I reply that these things are of very great importance so long as they are aids and not obstructions to the higher human and spiritual process. May I quote Professor Campagnac once again? "Able and alert teachers," he says, "at the beginning of their course often do what is indeed essential in a vivid and attractive lesson: they engage their minds upon it as they proceed; and yet because of that very virtue fail to arrive at the goal that they proposed, or perhaps arrive at no goal at all, and lead their pupils to none. This is a bad fault; but it is better than the wooden and mechanical perfection of a person who plans out in detail exactly what he is going to do, and does that and nothing more."³ The function of preparation, of lesson notes and careful selection of right methods, is, I hold, to set the teacher free to follow the inspiration of the human intercourse in the lesson, without ceasing to be the vehicle of fixed and permanent truth. He must have an easy mastery of his subject in order that he may be able to appreciate and use the suggestions made by his boys. He must know the goal at which he aims and the method of attaining it, or his ears will not hear the word behind him when he turns to the right hand or the left.

¹ *L.C.*, p. 128.

² W. J. Locke; *The Glory of Clementina Wing*, p. 35.

³ *L.C.*, p. 109.

But if the preparation of the lesson is to have this effect it ought to make the subject matter and aim and technique of the lesson so completely an element in the teacher's mind that when he comes to give the lesson this preparation will influence his teaching almost without his knowledge. The preparation will supply determining tendencies rather than resolutions which have to be consciously recalled. It is true that when a teacher first begins his work this unity of the form and matter of his lesson will almost always be exceedingly imperfect, and it may probably be necessary to pay special attention to principles and points of method. I would, however, urge that even then the wider conception of the lesson should constantly be kept in mind. At present, it seems to me, we sometimes concentrate on method and leave the spirit to develop as it can. It would take too long to work out the detailed application of the principles I am advocating to the preparation of lesson notes and the criticism of lessons, but I think enough has been said to indicate the standpoint from which these practical matters might be approached.

With these suggestions I must be content. The particular recommendations I have made are probably of unequal value, but of the importance of an outlook comprehensive enough to include the whole of human nature, individual, social and supra-social, there can hardly be any doubt. It is men who are wanted in our schools, and our duty is to try to take them captive that they may become still more alive, and when they go out to do the work of teaching they will, we trust, continue the process in their turn. Nor can we give them a truer conception of their calling than by the words *ἀνθρώπους ἑσέσθε ζωοῦντες*.

SOME NOTES ON AMERICAN SCHOOLS AND TRAINING COLLEGES.

BY HILDA J. HARTLE, B.Sc.

In the light of Dr. Percy Nunn's very interesting and suggestive address at the last meeting of the Training College Association, the following account of some recent American developments in Education may be of interest. Of these I found evidence in a number of schools and training colleges which I visited when spending some months in the States a short time ago.

The American training college, or normal school, is a much more composite institution than the corresponding institution in England. At colleges which I visited, such as Kalamazoo (Michigan), with accommodation for 900 men and women, and Normal (Illinois) with accommodation for 600, I found departments for the training of teachers for the kindergarten, for the elementary and the high schools, and, in addition, departments for the training of special teachers of art, manual work, physical exercises, domestic science, and agriculture. Already, however, the training colleges are beginning to specialize. At Kalamazoo special emphasis was laid on manual arts, and, in addition to its own workshops, use was made of those in the recently built technical high school. This is one example of that interchange in the use of equipment

which is so frequent a feature of American institutions. Framingham (Massachusetts), one of the few State training colleges possessing a hall of residence, is specializing in domestic science, and is using its hostel as part of its practising ground, while the college at Salem (Mass.) is about to specialize in commercial subjects. The last mentioned is of interest as indicating the lines along which the training of vocational teachers is moving. The commercial course at Salem is a four-year course, the first three years being spent in professional and academic work, while the last year is to be spent by the student in an office in the city, working under ordinary business conditions. So far, the business men of the district have welcomed the scheme, and are offering facilities for study. Students, after this training, will probably seek posts in the commercial departments of the modern high school.

In America the school leaving age varies in the different States, education, in some, being compulsory till 16, in others, only till 14 years of age. In the majority of American cities the children attend the elementary school from the age of 6 to that of 14, many passing thence to the high school, which is planned to give an additional four-year course. Some cities, notably Detroit, are trying the plan of ending the elementary course at the age of 12, transferring the children to a junior high school till 15, and then completing the course by a three-year period in a senior high school. These junior high schools are of varying type, in some the academic work predominates, in others the industrial and commercial courses. The plan is also being tried of drafting the children at the age of 12 to a high school designed for a six-year course. This suggestion of ending the elementary school period at the age of 12 is finding much favour, but experiments have not been carried on for a sufficient length of time to determine whether it is better to have both junior and senior high schools, or to plan for an unbroken period in one school from the ages of 6 to 18. Doubtless this is partly a question of organization and finance.

The American ideal of a secondary school education for every child is not attained at present, and of those children who do enter the high school many leave at the end of the second, or even of the first, year. Investigations show that the reasons for this are to be found in the nature of the curriculum, rather than in any financial stress within the home. The American State Schools have accepted this implied challenge in a very characteristic way, and the result is the development of the technical high school of to-day, with its choice of household art, household science, and business subjects for girls, and commercial, agricultural, and manual courses for boys. The equipment of these vocational departments is most extensive. There is usually a model flat for demonstration purposes, or for practice, in domestic science, as well as elaborate arrangements for cookery and dressmaking, while in the commercial department are to be found calculating machines and all forms of office devices. The array of machinery and the variety of workshop practice for the boys is surprising. This is all to be found, not in special schools, but in what is rapidly becoming the characteristic high school of America. One of the Chicago high schools, with an enrolment of 2,600 day pupils, and over 6,000 evening students, possesses as part of its equipment a woodshop, a forge, a printing shop, and an

electrical and motor shop. This practical curriculum seems to suit the American child, for in every city to-day the school records give evidence of the same fact, namely, the rapidly diminishing number of pupils who choose the more academic subjects, and the corresponding increase in the number of pupils selecting the technical courses, together with the actual increase in the numbers entering the high school. America now claims that already 30% of the children from the elementary school pass to the high school, a higher proportion than in any other country.

The most typical of these schools are to be found in the cities of the Middle West. Such a school may accommodate 2,000 children, and may be used also as an evening high school and for day continuation classes, of which mention will be made later.

In the largest schools the teachers of these vocational subjects have had two years of training in a State normal school, and, in addition, have had workshop experience. Many have also a University degree. In a new country where men pass easily from one profession to another it is not difficult to acquire practical experience. Several of the Post-Graduate students in Education at the University of Columbia told me that at some previous time they had taken the engineering course, and many spoke of the very varied activities in which they had often engaged during the long summer vacation. The gaining of a degree is also an easier matter in America than in England, since the Universities will often accept as part of the course towards the degree, not only the work done in a normal school, but also the work done through the correspondence classes organized by the Universities themselves. Thus it frequently happens that teachers will give up their post after a few years teaching, and complete their degree by a short attendance (in some cases less than a year) at some State University.

America is still pre-eminently an agricultural country. By far the largest proportion of its people are still engaged in agriculture or in trades directly connected with agriculture. Consequently one is not surprised to find excellent vocational courses in connexion with the agricultural departments of the rural high schools. Such a department, as found for example in the State of Massachusetts, consists of about 25 boys in charge of a teacher, who has been a farmer himself, and has also shown that he possesses teaching ability. The boys all come from farms of such a size that it is an easy matter for each boy to have the use of at least half an acre of land. Independent work on the home farm is made an integral part of a four-year course, the work being planned so as to give a series of problems of increasing difficulty. The teacher takes his holiday in the winter, and spends the summer vacation in supervising the work of his pupils on the home farm. Incidentally much instruction is given to the farmer himself, who otherwise might be unwilling to accept advice, and who is probably unconscious of the need of help in his farming. These arrangements illustrate the way in which America is trying to carry the work of the school into the home.

Various kinds of continuation schools are being tried. Many day continuation classes are held in the slack seasons of the trades, and the curricula are settled by committees composed of the teachers, the employers, and the representatives of labour. The following incident, which was described to me, may be of interest as

illustrating the possibilities of such a committee. The Principal of the high school in which such a class was held called a meeting to discuss the plans for the coming session, forgetful of the existence of a strike between the masters and men. The surprise of the meeting provoked angry recriminations, which subsided after a time, and finally permitted the discussion of the educational programme in question. When this had been amicably arranged, the Principal suggested that other matters in dispute might similarly be settled, whereupon the meeting continued and the strike was ended that very afternoon! This Principal had previously held the post of manager in a large works, and affords another instance of that variety of experience so frequently found in the life of the American teacher.

A few cities have started what is known as the "In and Out" class. Such a class meets in the daytime at one of the ordinary high schools, and I had an opportunity of visiting a class of this description at the Washington Irving High School, New York. It consisted of girls of seventeen years of age, employed in the large dressmaking establishments in the city, or engaged in clerical work in the offices of the Education Department. Each post was shared by two girls who alternately spent a week at the office or shop, and a week at school, the work of the latter being closely correlated with that of the occupation. An important feature of this scheme was the presence on the school staff of a woman with knowledge of business conditions, to whom the many difficulties which may arise during the first few months of business life may be submitted. This supervisor was responsible for the whole work of the course. She assisted in the teaching of the students, and spent considerable time in visiting and keeping in touch with the various shops in which the girls were engaged.

Apart from the high schools, day continuation classes are to be found in many of the department stores and works of any large city. Attendance at these classes is voluntary, but employers are urged to be present, and those who gain the certificate granted in connexion with these classes are the more likely to obtain promotion. These classes are held in the employer's time, and in a room provided by him, but the teacher and all equipment are provided by the City Education Authority. The classes visited in the department stores of New York met for two hours in the morning, on five days a week, during a period of three months.

In addition to day classes, there are the classes which form the evening elementary and evening high schools. These schools have a curriculum similar to that of the corresponding day schools, but in addition offer many classes for the teaching of the English language. These schools are intended primarily for the immigrant of 16 years and over, but at present many native-born American children complete their education at these institutions.

The American school certainly devotes a larger amount of time to manual work of all kinds than the school of the same type in England, and there is a small body of educational thinkers who fear lest the education given in the school become too narrowly vocational. Judging by the most recent developments it would seem that this minority will not command attention, but that the obvious demand of the people for still more vocational training will be granted.

A PEDAGOGICAL SURVEY OF A SCOTS SCHOOL.¹

By JESSIE J. FULLEGAR.

THE term "Survey"² as applied to school work is American in origin. It is the historical outcome of the tendencies "which endeavour to 'commission,' 'rate,' and 'standardize' various features in educational activity and provisions for educational organization. The school survey movement, however, is the logical outcome of the recent discovery and development of scales and other standards of measurement of the educational progress of individual pupils, and an estimation of the comparative positions which schools and systems of schools occupy in any field of study. Although many of the surveys that have been made [in America] were actuated by more popular interest and gave vent to the tension of local pressure, it is highly probable that the survey movement of the present decade would not have taken form had it not been for the norms, standards, and scales established during the preceding decade by investigations in teaching school subjects to children and in the administration of city and State systems of schools."³

The survey, then, is but an illustration of the present general tendency to substitute objective standards and measurements for subjective opinions, and the ideal appears to be to represent the results of such investigations in the form of graphs.

Some surveys are primarily financial, others hygienic, others vocational and industrial,⁴ and some primarily educational. The survey attempted here is restricted to testing the efficiency of the teaching of the fundamental processes of a primary school, and may be termed pedagogical.

HANDWRITING.

Almost the first subject for which scales of measurement were devised was handwriting, and with this subject we begin our survey. For handwriting there are at least four scales or methods of measurement, devised respectively by Thorndike,⁵ Ayres,⁶ Starch,⁷ and Freeman.⁸ The scales of Thorndike and Ayres are, by reason of priority and ease of application, the most popular. Thorndike's scale runs from Quality 4 to Quality 18, i.e., 15 grades, and it comprises, in the most recent edition, 30 samples. Ayres's scale has 8 grades—from Quality 20 to Quality 90, and, presenting 3 samples of each grade, comprises in all 24 samples.

In addition to scales, norms of achievement for the various ages of pupils are necessary for a survey. Such norms can be arrived at by taking the mean or median of the performance of a large number of

¹ This investigation was suggested and supervised by Dr. R. R. Rusk, to whom the writer is much indebted.

² (a) "Report on the Committee of the National Council of Education on Standards and Tests for Measuring the Efficiency of Schools or systems of Schools." United States Bureau of Education, Bulletin, 1913, No. 13. Whole number 521. (b) U.S.A. Commission of Education Report, 1914, ch. xxiv. (c) U.S.A. Commission of Education Report, 1915, ch. xviii.

³ 1914 Report, pp. 513-15.

⁴ 1914 Report, p. 576. For suggested methods of measuring such school factors as (1) sanitation and hygiene, (2) outside influence, (3) building and premises, (4) equipment, (5) courses of study, see *Journal of Educational Psychology*, vol. v, pp. 571-588.

⁵ Thorndike: *Handwriting. Teachers' College Record*, vol. ii, No. 2.

⁶ Ayres: *A Scale for Measuring Quality of Handwriting*. Russell Sage Foundation.

⁷ Starch: *Journal of Educational Psychology*, IV, pp. 445-470.

⁸ Freeman: "Teaching of Handwriting."

pupils. This has been done by Starch¹ for speed and quality of handwriting, and by Kimmins² for speed alone, but for boys and girls separately. From such mean performances an ideal set of norms of what might be expected of pupils can be inferred. This is what was done by Wilson.³ For our survey the norms resulting require to be compared one with the other; this comparison is best shown in a graph.

As an instrument of measurement Thorndike's scale has been claimed to be superior to that of Ayres, but from the same figures a conclusion somewhat in favour of the Ayres scale has been drawn.⁴ The Ayres and Thorndike scales can be equated one to the other from the figures given by Kelley⁵ :—

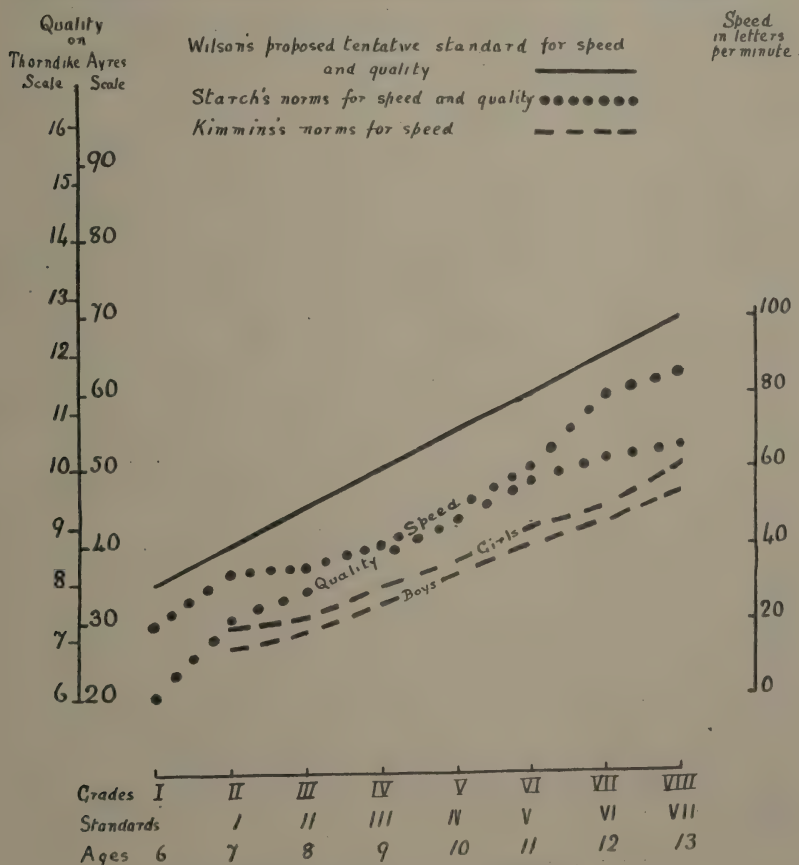
$$T \ 6 = A \ 20$$

$$T \ 10 = A \ 50$$

$$T \ 14 = A \ 80$$

$$\text{and generally } 1 \ T = 7.9 \ A.$$

The equivalent values on the two scales are illustrated in Graph I.⁶



¹ Starch: *Journal of Educational Psychology*, IV, pp. 445-470.

² Kimmins: *Child-Study*, IX, pp. 61-64.

³ Wilson: Freeman's "Teaching of Handwriting," p. 145.

⁴ R. Pintner: *Journal of Educational Psychology*, V, pp. 525-536.

⁵ T. L. Kelley: *Journal of Educational Psychology*, V, pp. 589-595.

⁶ For slightly different comparison, see Starch, *Educational Measurements*, p. 61.

FIGURES ON WHICH GRAPHS ARE BASED,

		I	II	III	IV	V	VI	VII	VIII
WILSON	Grades								
	Speed	30	40	50	60	70	80	90	100
	Quality	35	40	45	50	55	60	65	70
(Ayres's scale)									
STARCH	Speed	19.3	33.1	34	40.2	50.6	61.6	79.4	84.8
	Quality	6	7.4	7.8	8.6	9.2	9.8	10.2	10.4
	(Thorndike's scale)								
KIMMINS	Ages	—	7	8	9	10	11	12	13
	Speed { Girls	—	18.8	21.4	29.3	36.1	44.5	49.3	61.0
	{ Boys	—	13.9	17.4	25.1	32.9	40.2	46.6	53.9

The apparent superiority in speed of the American children, as represented by the graph of Starch's results, over the London children is accounted for by Kimmins¹ on two grounds: (1) Starch's period of testing was two minutes, whereas Kimmins's was five minutes. As is evident from the results given below of the two and five minutes periods, in the Scottish investigation there is no great difference in the average number of letters written per minute. With older pupils the longer period generally gives the higher average, the effect of fatigue being more than counterbalanced by the influence of *Anregung*, or getting under way. (2) The second explanation offered by Kimmins is that the speed tests were given in America at the end of the school year, thus Grade II results are those of children who were on the point of passing into Grade III. It is, nevertheless, probable that the American child does write more quickly than the English. The most rapid writer Kimmins has discovered is a boy of 13 years, who in a good legible hand reached a speed of 97.4 letters per minute in ordinary writing and 112.4 in manuscript writing.² Freeman states that the sixth grade of one American school which he investigated wrote at the average rate of 114 letters a minute without falling below the average in quality.³ From these statements we must conclude that the advantage in speed does lie with the American child, and this is to be expected, as in the American teaching of handwriting the emphasis is on the movement, whereas in this country it is on the form. The effect of this difference of emphasis is more evident when the Scottish results are compared with the American, and might also be inferred from a comparison of the mean variations of speed with those of quality in the Scottish investigation.

The method used in the Scottish investigation⁴ was that described by Freeman.⁵ Instead of the "poem stanza" recommended by him, the line "Mary had a little lamb," used by Starch and Kimmins, was substituted. The children wrote this "at natural speed, as well as they could, and without interruption"⁶ for two periods—one of 2 minutes and one of 5 minutes. With the exception of the two youngest classes, in which pencils were employed, the pupils wrote with pens on sheets of paper similar to those which they regularly used for written work. The papers were distributed among the pupils indiscriminately to the number of about twenty for each class. The pupils were first required to write for 2 minutes, the period suggested by Starch, and again for 5 minutes, the period employed by Kimmins.

¹ *Child-Study*, Vol. IX, p. 63.

² For specimens of manuscript writing, see *Child-Study*, Vol. IX, No. 5.

³ "The Teaching of Handwriting," p. 149.

⁴ The writer is also indebted to the head masters and teachers of certain schools for very kindly affording the necessary facilities.

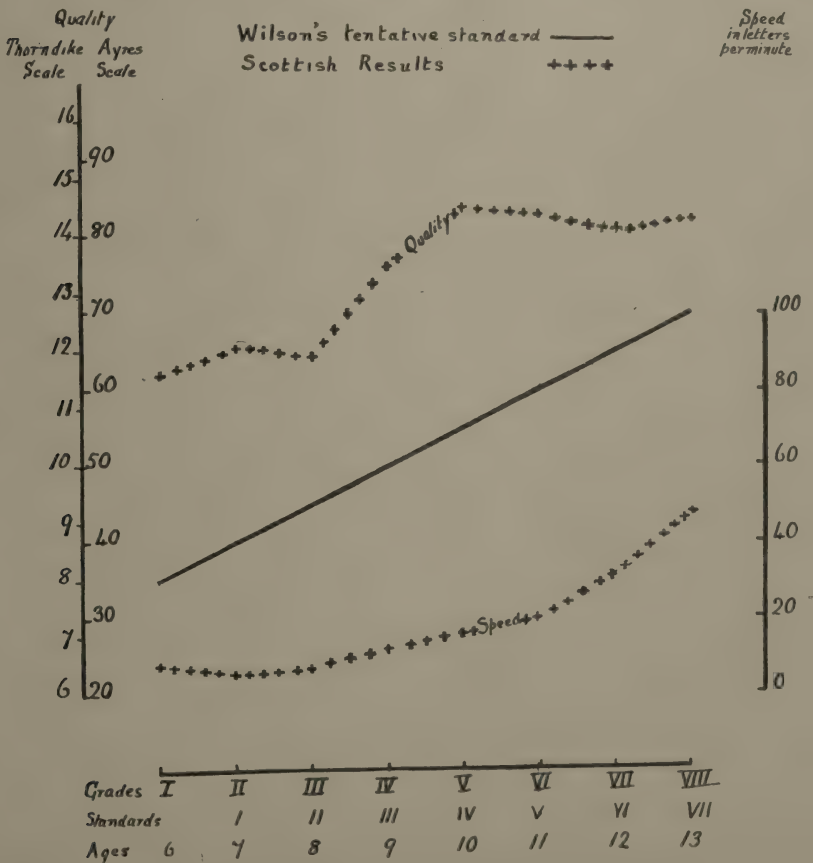
⁵ *Journal of Educational Psychology*, Vol. III, p. 188.

⁶ Starch: *Journal of Educational Psychology*, Vol. IV, p. 456.

It ought to be mentioned that the test was applied to more classes than those of which the results are shown, to avoid any invidious comparisons which might arise. It must also be noted that in the graph the results of the five minutes period only are shown. In determining the speed, the averages of the classes were taken as representative, and the *m.v.* was also calculated. For the quality, two individuals judged the handwriting by means of the Thorndike scale, both in an ascending and descending order, thus giving four judgments. The median of these was then taken, and the average of these medians gave the class value. To indicate the variability the M.V. of the medians was also calculated. The results are summarized in the following table:—

Age.	Standard.	No. of sub-jects.	Speed in letters per min. for 2-minute period.		Speed in letters per min. for 5-minute period.		Quality on Thorndike Scale. A.M. M.V. of medians of four judgments.	
			a.m.	m.v.	a.m.	m.v.		
6		20	8.8	1.9	7.6	1.8	11.6	0.6
7	I	24	6.8	1.1	5.6	1.0	12.1	0.8
8	II	22	8.1	1.5	7.3	1.6	11.9	0.9
9	III	22	10.7	2.8	11.3	2.6	13.5	0.5
10	IV	22	12.6	2.03	15.18	3.8	14.6	0.6
11	V	22	19.7	4.1	20.1	2.9	14.4	1.06
12		44	27.7	5.3	31.4	5.6	14.1	0.6
13		24	48.2	6.4	47.3	8.8	14.3	0.6

In graphic form these results appear:—



An additional factor which might account for the great difference both in quality and speed between the writing of the American and of the Scottish children is the use of ruled "guide-lines." The ruling used by different classes is that reproduced below, the three spaces forming the unit in Standard II writing, and one space in Standard III and Standard IV.

Standard II.	Standards III & IV.	Stand. V & upwards.

By the means indicated above the various methods of teaching employed in different countries will be able to be definitely compared.

(To be continued.)

JEAN-MARIE LAMENNAIS, A BRETON "LA SALLE."

By A. P. BRADDOCK.

THE brightness of the reputation that surrounded Felicité Robert de la Mennais (1782-1854) as a preacher and writer of the Church in France, and the deadly shame of his downfall and apostacy, have dimmed many eyes to the steady, rich glow of piety and zeal in his elder brother, Jean-Marie (1780-1860), and the abiding results of the work to which he devoted his life. Most people who remember the name of Lamennais at all, turn in their thoughts to the younger man, and have no memories of Jean-Marie; yet this was by no means a man of small parts, to be easily eclipsed. In his useful life, however, there were not any emotional episodes or tragic outbursts to attract public attention, such as occurred in the case of Felicité. Jean-Marie was the business man, the organizer, recognized beyond the limits of the diocese to which he was attached as a priest, for his power as an administrator. All his life was ordered. Even the fears he may have entertained at one time regarding the success of the work to which he had devoted himself were locked within his own breast, and his anxieties on behalf of his brother, once reclaimed by him for many years of service to the Church before his final fall, were not advertised in the public eye. And this work, on which he concentrated all his energies for the latter half of his life, was the organization of a community of young men, whose work has been of so great value to France and to education, that it is strange so little is known of it, and that the name of Jean-Marie de Lamennais is not mentioned nowadays very near to that of St. John Baptiste de la Salle, the founder of the Institute of Brothers of Christian Schools.

Strangely enough, by a curious dispensation, the influence of Lamennais has been felt in England in schools for poor children, and

though it did not last for long as a *direct* influence, it came to bear at that crucial period in the mid-nineteenth century when no one knew where to turn for the men teachers, members of religious communities, so earnestly required for the boys' schools. About this time the Catholic body in England began to participate in the Treasury grants which were made through the Committee of the Privy Council towards the establishment and maintenance of schools for the poor, and the formation of the influential Catholic Poor School Committee combined with other more remote causes to give a marked impetus to the movement. But the provision of schools necessitated the provision of teachers, and, at the time, this meant teachers who were members of religious communities, for, in the opinion of the leading Catholics responsible for the schools, none other could give adequate service.

Good often seems to arise out of evil, for, if we believe one of Lamennais' biographers, when "Féli," his greatly loved brother, fell away from the Church, Jean-Marie gave up his diocesan offices, and, refusing all preferment, turned to devote his life more completely to his teaching Brotherhood. Had this not happened, the story of Catholic Elementary Education in England might have been very different from what it is.

Born in 1780, Jean-Marie was of just the age by the time of the Revolution for its events to have a marked influence upon him. Later on he was greatly disturbed to see the growth of a dangerous form of liberalism in the Church in France. It is not remarkable, then, that shortly after he was ordained he made an effort to provide means for combating this danger by preventing its spread among children, if possible.

He was a man of rare talent as speaker, writer, and administrator, and soon rose in esteem, coming to occupy important offices in the Church. In one of these he found the opportunity of bringing the Brothers of the Christian Schools to St. Brieuc, and of founding a Congregation of Women—"Les Filles de la Providence"—to undertake the education of little girls. Before this, however, as quite a young priest, he founded a Secondary School in his native place of St. Malo, and, although it had to be closed, he was able to write in 1820 that he had established free schools at St. Brieuc, Dinan, Lamballe, and Guingamp. It was really the provision of these schools with teachers that led to the foundation of a Congregation of Men as a complement to the "Filles de la Providence." There were in France large numbers of parishes too poor to support more than one master to a school. The rule of La Salle did not permit the Brothers of Christian Schools to go out to teach single-handed, and it was therefore to supplement this Community that Abbé Lamennais formed his Brotherhood.

He adopted for its part of La Salle's rule, making certain modifications which would render it easier for poor parishes to obtain the services of the Brothers. Thus the "Brothers of Christian Instruction" became supplementary to the "Brothers of Christian Schools." The Community was instituted at St. Brieuc in 1817, but a somewhat similar body had been formed in 1816 at Auray by M. Deshayes, who was Curé there, and had gathered to him six young men to be trained as teachers of the poor. In 1819 M. Lamennais and M. Deshayes decided to rule the two Communities jointly, and a year later saw the

first-fruits of their labour in the establishment of the four free schools mentioned above.

In 1821, however, the partnership which had begun with such good results had to be dissolved, for Deshayes became Superior of the "Missionaries" of St. Laurent and the "Sœurs de la Sagesse." When taking up his new post he was followed by some of his disciples from Auray, and so a new community was formed south of the River Loire, assuming the title of "Brothers of St. Gabriel."¹ Those left at Auray first moved to Josselin, and then joined up with M. Lamennais' section from St. Brieuc at Ploërmel (Morbihan).

The following year the "Institute of Brothers of Christian Instruction" was recognized by "Ordonnance Royale" (May), and two years later, writing again to M. Bruté (September, 1824), M. Lamennais was able to announce that he had bought a suitable house at Ploërmel, to which he proposed to transfer his novitiate in November. The property was an old disused and much dilapidated Ursuline Convent, but the efforts of the Brothers made it habitable, and by degrees the "Institute" was properly housed.

Abbé Lamennais now made Ploërmel his head-quarters. He directed the whole organization himself. Novices were received and trained, and by degrees the Community began to have houses in other parts of Brittany, and the Brothers served a number of parish schools; but M. Lamennais made a point of keeping in personal touch with each house and with each Brother, who was expected to write to him at least once a year, the Abbé being punctilious about replying to their letters by return of post. Every year a reunion was brought about by means of a Spiritual Retreat, conducted by M. Lamennais at the mother-house at Ploërmel.

His early interest in schools had taught the Abbé the value of the trained teacher, and the importance of the personal influence he can exert upon the members of his class. Teaching by monitors, as in what was called the "mutual method," might be serviceable, even desirable within limits, for routine work. M. Lamennais recognized the value of a monitor in the early stages of teaching reading, and for supervising sections of the large classes that his "Brothers" were of necessity obliged to administer; but he was always opposed to this method, which was much advocated in France and widely employed there, especially after 1833, owing to the influence of the Rectors of the Academies, who were strongly in favour of it.²

Lamennais said of teachers, "Il fallait leur apprendre à enseigner et pour cela faire choix d'une méthode." He had three methods from which to choose. The "individual" or "catechetical method" was by necessity of numbers impossible; the "mutual" method was, in his opinion, inefficient and "ridiculous." The only one left was that generally employed by the Brothers of the Christian Schools, the "oral" or class method. He adopted the last with some modifications, so that in the end the "Lamennais" method was a combination of the best features of all three.

¹ M. Deshayes' Christian name was Gabriel.

² M. Van den Ende, Head of the Normal School at Haarlem, told M. Cuvier that the popularity of the Lancaster system in France was due to the influence of people who knew little of education, but had been impressed on visiting English schools by the order that prevailed. The economy of the system had blinded them to its defects, so that they advocated it in France.

A description of a "Lamennais" school given in the early days of the Institute says that monitors were employed only for teaching beginners in reading. The children were classified according to attainments, in as many sections as possible; each child had his place at a desk, and did most of his work there.¹ The school sessions lasted three hours, morning and afternoon. When the number of Brothers at a centre warranted such a course, Evening Schools were conducted by them, and the ordinary curriculum of the day school was extended to include drawing, geography, and such other subjects as might be deemed desirable. Corporal punishment was never employed in the schools, but incorrigible pupils were sometimes excluded, or presented to M. Lamennais when he visited the school. Kindness was the "soul of the system."

Until 1824 M. Lamennais had been Vicar-General of the Diocese of St. Brieuc, but he resigned this office in order the better to attend to the work at Ploërmel. Matters went along quietly until 1833, when the Guizot Law demanded that teachers should obtain a certificate qualifying them to teach. Although this came upon M. Lamennais as a distasteful requirement, he endeavoured to conform to the new rule, and the Brothers set to work to acquire the "Brévet."

In 1836 the change of conditions which accompanied the emancipation of slaves in the West Indies began to cause the French Government some alarm; the Minister of Marine demanded teachers and schools for the Colonies, so that an education on solid *religious* grounds could be given to the negroes. Abbé Lamennais was asked to supply the masters for this undertaking. He did so, and thus began the world-wide work of the Institute. The value of the Brothers' services in the course of the next ten years was officially recognized. Their influence in their extended sphere of labour was very marked, and the share they had in restraining the negroes during the risings in 1848 was noted by the Government in the conference of the Legion d'Honneur on one of their number.

It was about this time that the Roman Catholic Bishops in England were greatly exercised in mind about the means for providing teachers for their schools. The only sources upon which they could draw for men teachers were the Irish Christian Brothers and the Brothers of Charity at Ratcliff. The first-named would not submit to Government supervision in the schools they administered, while the second could provide far too few teachers for the growing needs of the country. The dearth of teachers was crucial, and at last Cardinal Wiseman, acting on behalf of the Bishops, wrote to Abbé Lamennais asking him to take some young men from England into his Institute, admitting them as novices, to train them for work as teachers in English schools.

After some negotiations arrangements were made, and on Christmas Eve, 1849, five young men from England arrived at Ploërmel, crossed a little square towards a pile of buildings at one corner, and were admitted to the Institute by the door on which was inscribed the words, "Sinite parvulos venite ad me," a suggestion of the life-work they were about to enter upon: for the reason why they had journeyed so far was that they might be prepared for the duty of giving Catholic primary education to the children of the poor.

¹ This was some years before Matthew Arnold advocated this course for English schools.

For a few years only, the training of British novices at Ploërmel went on. The London house that was established as soon as possible on the site of a school¹ founded under the patronage of Dr. Richard Challoner in the Penal Times, and to which the British novices repaired soon after their profession at Ploërmel, gained complete autonomy, and communication with M. Lamennais ceased entirely. The arrangement whereby teachers for English schools were trained in France, necessary as it seemed at the time, could never have proved quite satisfactory for very obvious reasons, but Ploërmel filled a gap, and may be looked upon as the Mother House from which the Training College at Hammersmith took its origin. The still increasing demand for teachers, and the impossibility of getting men with religious vocations for the purpose, made it necessary to throw open the Training School to laymen. For a little while the Brothers of Christian Instruction and the lay students were trained side by side, but after a short time the recruits for the Brotherhood ceased to come in, and by 1860 the laymen were left in entire possession.

To return to Ploërmel and Abbé Lamennais. The task of providing teachers for the French Colonial schools as well as for Brittany and Gascony proved to be very heavy. The young men from England entered the House when the exploits of the Brothers in Martinique, at St. Pierre and Fort de France had just gained wide respect for the "Institute," and when honours and thanks had been bestowed upon it by the French Government. The second half of the century opened propitiously by the arrival of the Apostolic Decree of Pope Pius IX, giving full recognition of the work that was being carried on.

Abbé Lamennais continued his labours without cessation in the service to which he had dedicated himself. His brother, whom he had once reclaimed from the path of liberalism, had fallen away from the Church in 1834, and twenty years later he died. Jean-Marie survived him by a few years, and passed away the day after Christmas Day, 1860. The monument to his memory stands in the development of his foundation. At the time of his death the Brothers' work extended beyond Brittany and Gascony, where there were about three hundred establishments in their care, to Guadeloupe, Martinique, Senegal, Cayenne, Miquelon, and Tahiti. At the beginning of the twentieth century there were 2,700 Religious teaching 75,000 scholars in 460 institutions, and still further expansion was going on.

This was the outcome of the labour of Jean-Marie de la Mennais, ordained priest in 1804, and in his time Vicar-General of St. Brieuc, Vicar-General of Grande Aumonerie of France, Honorary Canon of St. Brieuc and other Cathedrals, Chevalier of the Legion of Honour, founder of the Institutes of the "Brothers of Christian Instruction" and of the "Daughters of Providence." Though invited to the Episcopacy, he declined the honour in order to carry on the task of training teachers, mainly for the children of the poor.

¹ Brook Green House, Hammersmith, was established as a School for Girls in 1760 by Mrs. Frances Carpue.

AN EXPERIMENT IN THE USE OF THE REFERENCE LIBRARY.

By W. J. McCALLISTER, M.A., B.Sc., Education Department,
Queen's University, Belfast.

IN the eighteenth century, if we are to take Rousseau's assertions seriously, reading was the scourge of childhood, and the greatest source of misery to the youth was books. In the twentieth century the endeavours of educationalists to transform Rousseau's source of misery into a fount of delight, and so to present the "dull furniture of books" that it might allure to brighter worlds, have, it would seem, proved comparatively fruitless. The majority of our pupils leave school¹ without any adequate introduction to the world of books, with little love for good literature, and with little or no knowledge of the methods of consulting and using even such books as might prove useful to them in their daily occupations. Perhaps we have expected too much from the pre-adolescent pupil. No doubt the early age at which the elementary school boy completes his "education"—an age when the emotional elements in his nature are just beginning to assert themselves—accounts to some extent for the comparatively slight appeal which literature has made to him. The pre-adolescent does not seem to have the equipment necessary for such an emotional transmission of thought as literature. But there are aspects of life and work, immensely interesting to younger children, which are liable to be overlooked by teachers anxiously pursuing methods believed to yield results infinitely more desirable. One of these aspects is the *utility* aspect, and the object of the present article is to describe a method by which the writer tried to introduce children to a variety of books, under the guise of utility, and in such a way that the work would prove transferable when the activities of adult life took the place of school work and procedure.

The pupils in question attended a higher grade school in Liverpool, and had about eight hours per week assigned to English (exclusive of historical and geographical subjects); they were of both sexes, and of average age 14 years. The work consisted in specific, persistent, and extended training in the use of the reference library; a training which had for its object not the mere amassing of tit-bits of general information, but the familiarization of the pupils with the methods of consulting books, and the inculcation (to some degree at least) of the student habit. Probably the view taken as to the aim of the work cannot be more accurately described than in the words of Socrates²: "The chase after knowledge is of two kinds—one kind is prior to possession, and for the sake of possession, and the other for the taking and holding in the hands that which is possessed already. And thus when a man has learned and known something long ago, he may resume and get hold of his knowledge which he has long ago possessed, but has not at hand in his mind." The "chase for possession," it was argued, was just such a pursuit as would prove attractive to a youth, and it was hoped that in later life there would be the desire to "take and hold" in the hands again what had been to some extent possessed already, and that the effort to effect the capture would lead to further pursuit. This, as the writer conceived it, was an ideal broad enough to justify any of his leanings towards utility.

I.

Organization Arrangements. The necessary preliminary steps having been taken, Form A (of about 20 pupils) was divided into two sections (a) and (b). Section (a) visited the library on Monday afternoons. Section (b) usually wrote essays, or had other work assigned, being as a rule left to its own

¹See the results of an enquiry by Prof. Green as to what Boys and Girls read, detailed in the *Journal of Experimental Pedagogy*, Vol. II, No. 1. Of 143 cases of enquiry from pupils attending evening schools, six per cent read nothing at all, or the daily paper only; less than twenty per cent showed any sign of purposeful reading; the remainder read newspapers, "recreative" weekly papers, and "stories."

²Plato: *Theatetus* (198), translation by Jowett.

resources, although a teacher was occasionally present. On Wednesday afternoons section (b) visited the library, while section (a) wrote essays, &c. The time (15 minutes) necessary for making the journey to the Central Reference Library was taken from one of the recess periods, and the time actually spent at work in the library was one and a half hours, the end of this period synchronizing with the close of the afternoon session of the school. For four of the five years during which the writer was primarily responsible for the details and arrangement of the course as a whole, he had the assistance of a colleague who accompanied another form (B) to the library. During one of the years, however, no library work was given to this form, and, as the attainments of the two forms in respect of English were pretty much on the same level, and as the writer was responsible for the whole English course of both forms, the omission of the work with form (B) during the period mentioned served to provide a rough "control group," and gave valuable indication as to the efficacy of the library training. Thus, while the course pursued cannot in a strictly scientific sense be called an experiment, there were in its actual working out features of an experimental nature. Observations were made over a period of five years, and the average duration of the course per pupil was about two years. The total number of pupils who made visits was nearly 200. There was the advantage of co-operation, and some of the advantages of a control group. To be frank, the writer commenced the work with at least no prepossessions in its favour. He records his impressions three years after the severance of his connexion with the school.

II.

Preparation. Before the visits were commenced, a series of special lessons was given on the necessity for clearness and accuracy in re-telling another person's thought. Such themes as various degrees of accuracy, closeness to the original, condensation, &c., were discussed, and a point made of summarizing chapter by chapter a number of works already known to the class. Concurrently with this analytic treatment, exercises in elaboration were practised, and some of the simpler devices in elaboration met with during reading were noted, the object being to avoid the production of disjointed paragraphs when the library notes were expanded later. Note-taking had been a feature of the work of the school in certain subjects, and this provided a useful basis for discussion.

A large plan of the Central Reference Library was then prepared, showing the allocation of the various classes of reference books. The school library had a very good selection of such books, and the pupils were encouraged to examine these, and to note the kind of information supplied by each. Tables of contents, indexing, references, catalogues, &c., were discussed, and the method of borrowing books over the counter (a card-file method was adopted in the library for all save new books and reference books) explained by means of a model ticket file and a facsimile of an application form showing class and number of book. Thus, when the time for the first visit came, the students had been fairly well prepared for their new surroundings. Some time was spent over this preliminary work, for the students were to be treated as ordinary adult readers, and it was obvious that there could be no interference with the sacred request for silence on the part of the reading public. The necessity for unobtrusive work was one which was easily seen by the children, and probably the very degree of freedom allowed contributed in no small measure to the success of the experiment. In order to emphasize their privileges it was suggested that they should themselves consider means by which their work could be pursued without encroaching on the rights of others. A small number of prohibitions was then drawn up by the students, and in the main faithfully observed. The following are specimens:—

1. No more than two of our number shall sit at the same table.
2. No student shall go to consult the teacher while he is engaged with another student.

3. All movement in the library shall be made quietly.

4. All books are to be returned to the proper shelves when finished with.

It is, perhaps, worthy of notice that during the whole of the work there was not a single complaint made by any of the public; nor was any repression on the part of the teacher necessary, unless, indeed, the enforcement of rule 4 in cases of thoughtless retention of books beyond the time necessary for consultation be so reckoned.

III.

First Work in the Library. The first two or three visits aimed at extending the pupil's acquaintance with the usual reference books. One student, e.g., was instructed to examine and report on the Encyclopædias—names and character of each, whether General, Business, Literary, &c.; another treated Dictionaries, and so on. During these visits the students collaborated in pairs, so that the work of one helped at least one other student. The aim was to enable the students quickly to find simple information on any topic, and to increase their knowledge as to the kind of information such reference books supplied. At the end of about a month's time opportunity was afforded for a general discussion as to the results of investigations, and students were advised to make use of the knowledge gained by other members of the class. (For obvious reasons the work attempted was individualized later.) Over-anxiety on the part of a member to supply information was in some cases rather summarily dealt with by others not quite so interested. One boy, expatiating on the knowledge he had gained about local celebrities from *Who's Who?* had exceeded his time-limit and exhausted the patience of others. While retailing at too great length the recreations of a certain learned M.P., he was coolly pulled up by a query as to whether he had looked for his own name, and found his favourite form of amusement to be speech-making!

IV.

Further Training (Technique). At this stage three or four months' practice in answering definite questions from reference books and clearly-indicated sources on specific subjects was afforded. A general idea as to the character of the work may be gleaned from the following examples taken from an actual notebook.

1. Who is the present Poet Laureate? What do you know of the duties of a Poet Laureate?

2. What is meant by "underwriting"?

3. Locate¹

"Silently, one by one, in the infinite meadows of heaven
Blossomed the lovely stars, the forget-me-nots of the angels."

4. Make extracts from any book on the "Art of Advertising."

5. With what dangers and difficulties has an Arctic explorer to contend?

6. What are the "Nobel Prizes"? Who were the recipients last year?

7. Write a few notes on the habits of one of our English song-birds.

8. Give an account of tiger-shooting in India.

9. Compare the number of vessels in the Royal Navy at the time of Queen Elizabeth with the present number.

10. Make a copy of an interesting letter written by Queen Victoria.

11. What kind of ants are "flying ants"?

12. Give the tonnage of the following vessels, and state by whom they were built:—"Lusitania," &c.

13. What is meant by the "Rural Exodus"?

14. How can an alien become naturalized?

15. What is a by-law? Copy one or two of the by-laws of Liverpool.

16. Are our imports from Australia increasing or decreasing?

¹ This quotation was suggested by a member of the class, and correctly located by several other members. It has been frequently suggested to the writer that the question was too difficult for his pupils.

It will scarcely appear from this list that an attempt had been made to localize the questions in the first instance. However, pupils were encouraged to present their own questions, and were allowed to substitute these for others offered to them. Nos. 3, 4, 15, 16 were propounded by the boy himself, while No. 1 was a question asked by a French boy with whom he had been corresponding. With regard to 13, which seems rather an unusual topic for a boy to be interested in, enquiry revealed the fact that the boy had seen the phrase somewhere, looked up each word (separately, of course) in a dictionary, and concluded that *the* historical Exodus was meant. Incidents of this kind led naturally to suggestions as to the best method of seeking information. Some of the work, however, led to searchings of heart. One girl spent a quarter of an hour, for example, in looking for Mark Tapley's name in *Who's Who?* Another individual searched a classical dictionary in vain for an account of "Bimetallism," while a third failed to find Miltiades in a Dictionary of Painters and Engravers! The method pursued was, after the first few visits, not to offer any advice as to source of information. (The questions were given some days previous to the visit, and substituted questions were examined then also.) It was made plain to the student that the teacher was always willing to discuss such sources on request. If the student thought he could proceed without help, there was no interference until there had been enough search to render help really profitable. A great deal of the value of the course certainly lay in just such flounderings as those mentioned, and ere long considerable facility in obtaining information quickly and sanely was noticed.

The method adopted, it will be noticed, aimed at a certain training in "library technique." This raises the debatable point as to whether such a course is really sound, or whether it would not have been better to plunge *in medias res*, and begin the study of topics at the beginning of the course. But arguments against technique (whether they take the form of objections to preliminary weighing and measuring in a physics course, or five-finger exercises in learning the piano) neglect a really vital point, viz., that such work, because of its very *novelty*, can be made of interest to the child. In this way certain results highly advantageous to future progress can often be secured by wise treatment, with less loss in interest than would be possible when novelty has lost its first attractions. In the present case there was the added interest of self-imposed questions. (In some cases, perhaps, "imposed by parents" would be a truer designation, but, again, the interest of the parent is often worth much discreet silence on the part of the teacher.) There was further interest in the fact that figures and results could be obtained as to the accuracy of which a teacher had often to confess ignorance. And as one of our leading librarians¹ has said:—"It is important to remember that to the young the world of books is a new world. The jaded feeling with regard to the classics of literature which older people affect is still non-existent in healthy children." The same is true of the works in a reference library.

V.

Final Stage (Themes). During the latter part of the work previously described it was made clear that each student was expected to bring forward for consultation topics which interested him personally. Failing this choice, a subject was set for treatment about which information had to be gleaned not only from such reference books as were available, but also from books written specifically on the subject. A discussion as to the relative values of such sources served as a concrete setting for Bacon's familiar words: "Some books are to be tasted, others to be swallowed, and some few to be chewed and digested: that is, some books are to be read only in parts: others to be read but not curiously; and some few are to be read wholly and with diligence and attention." The work gave ample opportunity for reiterating the fact that, in general, reference

¹ "School Libraries," by John Ballinger, M.A., *Teachers' Encyclopædia*, Vol. III.

books were to be discriminately tasted; that in approaching the study of a topic the simpler reference books should first be consulted so that a general point of view could be obtained; that after this there was generally required the consultation of works specifically written on the subject in question. Elementary comparison of a few simple subjects led to simple working ideas of a bibliography, and also opened up vistas of future reading which the writer confidently believes became sources of pleasure. Thus, one pupil compared the character of the information obtained about Dr. Johnson in a *History of English Literature*, a *Dictionary of Biography*, and Boswell's *Life*. Another compared his *Geography* text-book and a *Gazetteer with Modern India*, by Sir J. D. Rees.

With reference to the character of the topics suggested by the pupils, the general basis of selection seemed to be individual preferences, often stimulated by a special lesson given by a colleague. Thus a lesson on a steam engine led to a rush on the part of the boys to the ticket file under "S," and a school exhibition of art (including needlework) led to the study of two or three books like *Chats on Embroidery and Lace* (Mrs. Lowes). A very fruitful source of work was the search for applications in actual life of points which had been raised in science lessons, and this accounted for the popularity of such books as the *Romance Series*, published by Seeley; *The Story of a Piece of Coal*, by Martin; and the *Common Objects* series, by Rev. J. G. Wood.

However, it must be frankly confessed that not every student did suggest a subject. There were some people of the "I want to do shorthand" type. While no suggestion offered by a student was ever rejected, there were certain ways in which indirect pressure was brought to bear on the ultra-utilitarian pupil, or the pupil who did not seem very anxious to extend his reading beyond what was necessary for "preparation" purposes. At regular intervals each member read a paper on his own topic. These were on the whole attentively listened to by the others, who often asked for the meaning of words and phrases, a proceeding which was encouraged at all times. The "shorthand type" fared rather badly in such a situation, and the desire to be as good as one's neighbour usually led to a wider point of view. If the subject seemed to be dangerously near the limits of class work, a friendly query as to the books the student intended to consult, with the suggestion that it was hardly worth while to go to the Reference Library when all the books required were at hand in school, proved, as a rule, wonderfully effective. In this way the study of topics helped preparation, and extended the sources consulted without the pupil feeling any loss of freedom, and without decreasing his respect for the books recommended by other members of the staff.

A fruitful source of suggestion for topics of study arose in connexion with a correspondence which had been initiated with a French school near Geneva. It was usual for each third letter to be written in the mother tongue, and it was open to any pupil to ask his correspondent to write on any subject on which information was desired, the intervening two letters affording time for study and preparation if such was required. It proved rather tantalizing to have to confess ignorance (to a French boy) as to the constitution of the House of Lords, the meaning of Free Trade, the manner in which a General Election was carried out, the presence or absence of any signs at the present day of the Roman occupation of Chester, or the causes of the terrible "brouillard anglais." The effort to ask a *quid pro quo* was often interesting, and often not unconnected with work in the library.

A short list of subjects attempted by two or three pupils may not be without interest.

(1) BUSH LIFE IN AUSTRALIA.

The Commonwealth of Australia (Wise).

The Bush of Australia (Samuel Sidney).

The Native Tribes of Central Australia (Spencer and Gillen).

(2) INDIA AND ITS PEOPLE.

Modern India (Sir J. D. Rees).

Glimpses of India (Furneaux).

Cities of India (G. W. Forest).

(3) *The French Revolution* (Carlyle).

" " (Mallet).

Dufour's Narrative of the last days of Marie Antoinette.

VI.

Connexion with Æsthetic Education. Some apology may seem necessary for the mention of æsthetic education in connexion with work which had primarily its *raison d'être* in avowedly utilitarian considerations. The fact, however, that a teacher adopts a utilitarian standpoint for part of his work does not necessarily make him an advocate of a utilitarian ideal in education. While it is true that we should never allow what *is* to dictate to us what *should* be, it is just as true that in our attempts to attain what should be, we ought to work in consonance with the potentialities of childhood as they exist at any given stage of the child's mental development. But there is no wish to suggest that such a library course as is here sketched should be a substitute for either the intensive study of masterpieces, or for the attempt to bring elementary æsthetic education within the range of the child's activities. Indeed, the greater part of the English course taken by the students was framed in entire sympathy with just such considerations. And although there has been no mention made up to the present of any supervision of the reading of fiction by the students, such supervision was carefully exercised, and its importance at least not under-estimated. With the usual practice of limiting library direction to fiction alone, a few remarks will be hazarded later. While in the matter of æsthetic appreciation one perhaps should not expect much influence to be exercised on the future reading of the pupils, there is surely some reason for the small influence that the intensive study of a few books in school had in the enquiry above referred to. The pedagogical work, whether on intensive or appreciative lines, when tested by results, proved practically non-transferable. The names of a few well-known books usually read in schools stand in splendid isolation.

But in the attempt to make the pupil feel the beauty of the "light that never was by sea or land," the library work may prove a useful aid. It is now generally agreed that in lessons which have for their aim the development of æsthetic education, the teacher must be careful not to introduce unduly the merely intellectual elements, and thus cause distraction. In the valuable whole designated "æsthetic appreciation" we may distinguish (a) cognitive elements, (b) emotional elements. These emotional elements for which we are working in æsthetic education can only be present when there is a sufficient cognitive basis. The cognitive elements may, for æsthetic development, be of comparatively little value, but are indispensable if the emotional effects are to be present. If either of these elements disappears it may take much more than its own value from the valuable whole.¹ This raises a serious pedagogical problem. If the teacher, during the "appreciation lesson," seeks to teach or even to focalize the cognitive elements, distraction ensues, and the subtle emotional effect disappears. As Dr. Hayward² puts it: "Æsthetic creation is marked at every point by restraint, by economy of materials; not niggardly economy that fears to waste, but an economy that recognizes the supreme danger of obtruding non-essentials.

For non-essentials distract. . . ."

How then is the teacher to proceed? Some would have him trust to incidental teaching of these cognitive elements, others would be content with the mere provision of a 'literary atmosphere' and there leave the matter. Dr. Hayward's advice is to *pioneer the metaphor*.³ But how exactly are the cognitive elements to be presented apart from, and previous to, the lesson in appreciation? The writer's method was to plan in advance a series of lessons in appreciation, and

¹ See treatment on this point in Moore: *Principia Ethica*.

² The *Lesson of Appreciation*.

³ Op. cit.

to use the reference library work for the acquisition of such knowledge as he deemed essential for an intelligent appreciation of each lesson. For this purpose formal questions were given and inserted among the others previously mentioned. Thus (the exception to the general plan of the library work) these questions were studied by each member of the Class, and steps were taken prior to the appreciation lesson to have their matter revised.

As an introduction to the atmosphere of Shakespeare's *Macbeth* several articles on Witchcraft were read from various sources; Addison's essay bearing on Superstition, and the essay on *Moll White* also proved interesting. Formal questions on such points as the "Norwegian lord," "Saint Colme's Inch," &c., made some of the allusions appear old friends. The knowledge so gained was at least as accurate as would have been gained from a "disjointed" lesson artificially constructed to bring up the topics in a seemingly natural manner. The previous sets of questions made this work appear more natural and interesting. Is it not a fact that children of larger growth are betimes pleased to find the result of previous study helpful in a new setting? Perhaps an ardent follower of Dr. Hayward would maintain that such a hedonic tone itself was a source of distraction. If so, it was a distraction caused by pleasant associations, and not all distractions are so caused. The intellectual work, after the appreciation lesson, was also helped by library work in several directions. To revert to *Macbeth*: the preparation for a debate on the subject, "Was Lady Macbeth really guilty of the death of Duncan?" led to the consultation of several books, e.g., Mrs. Jameson's *Shakespeare's Heroines*; Hazlitt's *Shakespearian characters*, &c. The understanding of an historical novel like "*A Tale of Two Cities*," was also greatly helped by library work (much of which indeed was private work by the pupils themselves), and led a few pupils to undertake a really good continuous study of some of the aspects of the French Revolution. Details as to an author's life and works were often sought for as a result of a lesson which happened to appeal to a particular student. In the case of simpler lessons a preliminary reading of even an encyclopædia article on the "Skylark" (and several pupils found better sources) was not to be despised as a preparation for either Shelley's or Wordsworth's poems on the subject.

VII.

Results. Apart from the increased mental alertness and wider range of interests, the effect of the work was clearly seen on the composition of the students. It was made quite clear from the first that mere transcription of extracts was practically useless, unless such extracts were required by the nature of the work. The notes made in the library were as a rule re-written, special attention being paid during the teacher's revision to sequence of thought, lucidity of expression, and grasp of the general argument. It was explained that these qualities were expected, since the *thought* had to some extent been supplied by the authors of the books consulted. Compared with the form which had had no library training the original essays were distinctly better both in form and matter, and this, notwithstanding that pains had been taken to supply Form B with exercises designed to produce essays of the "vertebrate type." If there were tendencies betimes, on the part of some students, to indulge in plagiarism, the effect of the tendency was seen and pointed out when unprepared essays were given and revised. Stress was laid on the necessity for strictly honest work and on the advantages of a liberal use of a good dictionary. The effort to understand what was read led to some of the pupils keeping lists of words (not explained in their own dictionaries) which they had met in general reading for reference to "The Century" or "Webster." The effect of extended vocabulary and command of phrase and idiom was seen in the success of members of the form in school (and wider) essay competitions.

Perhaps the most gratifying result of the work was the opportunity it afforded of that spirit of give and take between teacher and student which is of the essence of true freedom. In some cases the interest in the attempt to produce really good work almost amounted to anxiety. In others, great pains were voluntarily taken

to adorn note books with sketches, and elaborate indexing of a year's work was a source of pride. Very gratifying, too, was the amount of private reading done outside school hours, and for facilities in this direction the writer owes much to the courtesy of the Chief Librarian. In the cases where honest effort failed to produce much visible result there was a unique opportunity for making clear to the student the enrichment which such negative results often bring. Indeed, the cultivation of the germ of research through the work of the reference library may have in it some of the best features of heuristic education. There is a wide difference between unsuccessful effort and that attitude of helplessness which one can see almost daily in any public library. The type of the American Senator "who rushed into a public library and asked for a little red book which told all about Michigan, and which he had out three years ago," is by no means unknown in this country, and the writer had sometimes the opportunity of seeing one of his pupils come to the help of such an individual.

The introduction of young students to a serious course of study of the kind suggested may be urged from considerations other than the adoption of utilitarian methods for pedagogical reasons. There may be a great deal of truth in Nietzsche's conviction that "the large majority of pupils have to suffer their whole lives, through no fault of their own, owing to the premature demand for personal work—for the unripe procreation of thoughts." Indeed he goes further and suggests that "a man's subsequent literary performances are often but a sad result of this pedagogic original sin against the intellect."

The provision made for encouraging children to read, even where children's libraries or children's departments exist, has been limited almost entirely to fiction. Is this limitation of their good services desirable? Why do "stories" of the "love" and "murder" type exhaust the universe of fiction, especially for girls? We commend these questions to the consideration of philanthropists who, in the future, may wish to serve their generation by the establishment of libraries. We suggest also that the institution of a number of libraries which would make work of a serious nature possible to at least some of our pupils, and foster that "soul for study" for which Sir O. Lodge somewhere eloquently pleads, would be one of the best of investments for the future of the Britain which will arise out of the present conflict.

REVIEWS.

Hindu Mind Training. By an Anglo-Saxon Mother, with an Introduction by S. M. Mitra. (xxiv + 536 pp.) Longmans, Green & Co. 10/6 net.

It is not easy rightly to appreciate this book, or to gather from it exactly what the secret of Hindu Mind Training is, and yet the volume, if only for its collection of ancient Hindu stories, has charm as well as value. Apart from a lengthy introduction and a chapter on the psychological affinities between East and West, the Anglo-Saxon Mother offers us a collection of eighteen "moral" stories from Hindu sources, each of which is used as a jumping-off ground for a series of questions which the "subject" is to answer. Actual answers by different persons are printed in the text, to illustrate the method and to show how different people react to these incitements to self-analysis.

As illustrating both matter and method, we may perhaps be allowed to quote an example at length. The story is of a glow-worm and a troop of monkeys. "A troop of monkeys moving through the forest felt cold at nightfall, and seeing a glow-worm shining brightly in the dusk they mistook it for a fire. 'What luck!' they exclaimed. 'We will put some dry sticks and leaves on it, and soon we shall have a cheerful blaze.' So they piled up dead grass and twigs on top of the glow-worm, one blew it to encourage it to burn, and the rest sat round in a circle spreading out their paws to catch the warmth."

[Question 1. Did they really feel warmer because they thought they were sitting round a fire?]

"A bird in a tree saw the group squatting about the glow-worm. 'You may save yourselves the trouble you are taking,' he chirped: 'for that is not a fire, it is only a poor glow-worm.' The monkey who was blowing the heap of dry sticks heard him without result, till at last the bird, sorry to see such wasted labour, flew down to him. 'Be guided by me,' he persuaded him, 'and stop such silly coaxing of dead twigs that can never brighten into a blaze.' Thereupon the monkey, in a rage, threw a stone at the bird and killed him."

[Q. 2. What is the moral of this fable as far as the bird is concerned?

Q. 3. The bird could not teach the monkeys. What would teach them?

Q. 4. One monkey might have grown warmer apart from imagination. Which? Why?

Q. 5. Has human imagination a limit?

Q. 6. Can anyone learn provided sufficient pains are taken to teach?

Q. 7. Two kinds of wasted labour are described in this story. Whose are they?

Q. 8. Can you give instances of wasted labour that have come within your knowledge?

Q. 9. Has this story a moral that applies to human nature?

There are eighteen such stories, some of course very much longer, each of which is provided with a similar apparatus of questions. In actual use, the "subject" is required to read the story several times through at intervals of twenty-four hours before he begins to answer the questions. From this point of view it is unfortunate that the answers provided by other students are not printed as an appendix. They are here inserted with the questions, which themselves occur, not at the end of the story, but at the end of that section of it to which they refer. This is surely an awkward arrangement.

Apparently, the Anglo-Saxon Mother is responsible for the questions, which are specially chosen for Western conditions of life, and for the choice of the stories. One would have been glad to know on what (if any) principle of graduated difficulty the choice was made and the questions determined. Whether the introspective type of mind which such a training is calculated to encourage would be really desirable in all of us Westerns may be questioned. The native resolution which characterizes the West would inevitably "be sicklied o'er with the pale cast of thought," and thirty centuries hence our successors might still be living contentedly on the products, marvelling at our wisdom and never getting beyond it. As a system to be applied to all and sundry it is unthinkable here, but as a stimulus to studies in practical psychology and ethics it is likely to be useful.

J. A. G.

"Sadoletto on Education." A Translation with Notes and Introduction by E. T. Campagnac and K. Forbes, (pp. xlviii + 141). Oxford University Press. 7/6 net.

WE cordially welcome this book. Doubtless it shows high courage on the part of Professor Campagnac and his colleague to offer it to the public now, when men's lives are filled with wars and rumours of wars. To that, indeed, we owe the loss of the Latin text which it was the original intention to present side by side with the translation. It would have added to the interest of the book, though not to its educational value. There is no difficulty in getting into the mind of the good bishop through such a translation as this, clear in meaning and charming in style.

The volume begins with an Introduction mainly filled by a brief life of Sadoletto, the value of which is enhanced by short biographical notes of the many humanist scholars with whom the Papal Secretary, Bishop, and Cardinal, was in friendly relations.

There is a very full marginal analysis of contents, wisely reprinted before the text, of which it forms a convenient summary.

Why is Sadoletto worth reviving? In the first place we would say as a Christian adapter of Plato. Most of the doctrine is platonic, and in many places the bishop expands and throws light on the teaching of the great Greek.—Plato made Christian—that is the note of the first part of the book—over 80 pages—which deals with moral training and with the virtue of truth, which connects moral and intellectual training as an element in both. It is family training, with a tutor for the intellectual side, but owing its main force to the discipline, example, and precept of the father. Doubtless, the thought which comes most readily to the reader is ‘Who is sufficient for these things?’ Nor does the worthy bishop ignore the difficulty. He laments “How rare it is to find a parent who is truly wise!” (p 10), and his advice to secure a suitable tutor “is most difficult to carry out.” (p 88). There, indeed, is always the rub. It is not nearly as hard to set forth an admirable training as it is to give a moderately good one. But the portrait of what an educator should be serves its purpose if it helps aspirants to bear some resemblance to it, though, it may be, one all too distant.

In intellectual training Sadoletto is a Christian Humanist, with all the devotion to the authority of the ancients which had been both inherited from previous centuries and recently extended in its scope. Of course the intellectual fare is mainly literary; but this literary course embraces the orators, the historians, the poets, and treatises on the liberal arts. “All knowledge or learning is liberal” says the good bishop (p. 126) and he includes dancing and other forms of physical training in the ‘knowledge’ he gives his pupil. Would that theorists nowadays would take this to heart, and learn that “it is the spirit that quickeneth,” so that everything studied in the right spirit enlarges or ‘liberalizes’ the mind. Explicitly, geometry and arithmetic are included. The former, as in earlier centuries, is understood very widely, and embraces physics, geography, navigation, architecture, sculpture, painting, and astronomy. (pp. 122-125). The latter is a theoretical investigation into the general relations of members, such apparently as is found in Boethius. A wide enough course? Yes—though only the general principles of each subject should be dealt with (p. 135). But here comes in the traditional mediæval conception of ‘what knowledge is of most worth’, enough by itself to put Sadoletto out of court with all our ‘modernists.’ The aim of study is to reach “the essential qualities of things,” and these Nature has hidden and covered with mystery (p. 127). So “in so far as each art teaches the mind . . . to escape as far as possible from the dominion of the senses, and to retire into itself, it is specially useful and suitable as an introduction to philosophy” (p. 128). And philosophy “gives the art of living happily and well” (p. 140). Heresy? Yes, in that it is exaggerated. But is the heresy as deadly as the opposite exaggeration fashionable to-day—that the senses are the lords of life, and the chief work of the educator is to strengthen and develop their power?

J. WELTON.

“Discovery; or The Spirit and Service of Science.” By R. A. Gregory.
(xii + 340 pp.) London: Macmillan & Co. 1916. Price

Since August, 1914, the claims of science and scientific men to a higher place in public esteem have been among the very few subjects that have secured persistent attention in competition with the War. There is no doubt that in one or two directions at least the cause has made progress. Our captains of industry are not only sick of the story about the aniline dyes; they are disposed to make serious efforts to apply its moral. The governing bureaucracy, shaken out of its traditional attitude, welcomes scientific assistance with apparently genuine cordiality, and may in time be ready to pay a decent price for it. It is credibly reported that even Ministers have made discoveries in physics and chemistry comparable with the Duke of Newcastle’s celebrated discovery that Cape Breton is an island. That the public mind should thus have come to see that the national business cannot be conducted without the constant aid of scientific thought and skill is undoubtedly a

great gain; but it is not enough. The situation will be satisfactory only when the progress and development of science are recognized wholeheartedly as an integral part of the history of culture, and when our native contributions thereto appeal to the interest, the reverence and the national pride of cultivated people in the same way as our achievements in letters and art. To bring about this change in the public mind will be one of the most important tasks of our schools in the immediate future. In view of the large amount of attention that has been given in recent years to the teaching of science in secondary schools, it is disappointing that so little has been done hitherto towards its accomplishment. A full analysis of the causes of this comparative failure would need a long discussion, but teachers and critics seem to be largely in agreement upon at least one important point. Prof. Armstrong's propaganda, vivifying and salutary in its general influence on science-teaching, has produced incidental results which the apostle of the heuristic method could neither have sought nor desired. Claiming his authority, teachers infected with the inveterate formalism of the schools have cultivated "scientific method" on such a scale that there has been no room left in their courses for the free and joyous pursuit of scientific knowledge or for lessons that might open their pupils' eyes to the beauty and nobility of the scientific life.

Such considerations dispose the reviewer to give to Prof. Gregory's fascinating book a particularly warm welcome. It would, on its merits, have secured high praise at any time; it is now to be doubly praised for the appropriateness of its appearance. The author's aim is to do something to bring about the change in the popular attitude towards men of science which I have indicated as so desirable: a change to consist in a new sense, not so much of the utilitarian value, as of the intrinsic dignity and worth of scientific activity, and an appreciation of its possibilities as the expression of heroic life. In the pursuit of this purpose Prof. Gregory has achieved signal success. His method has been to select achievements of outstanding human interest in various fields of science, to describe them in simple and non-technical language, and to weave the descriptions into chapters devoted to the illustration of the more important aspects of scientific endeavour. The first thing that will move the admiration of the informed reader is the catholicity and remarkable range of Prof. Gregory's selections; the second, the skill with which he has contrived to make the aim and general nature of the several investigations clear to the uninitiated, while at the same time setting them in such a light that the experienced student will often feel that his sense of their value and dignity has been heightened. It would scarcely be profitable to follow the course of the work with detailed comments. The reviewer will have done his duty if he has indicated how useful and delightful a book Prof. Gregory has given us. It need only be added that it should find a place in the library of every training college and should come into the hands of every teacher of science.

T. PERCY NUNN.

An English Pronouncing Dictionary (on strictly Phonetic Principles).

Daniel Jones, M.A. J. M. Dent & Sons, Ltd. (pp. i-xxviii, 1-419.) 6s. net.

"THIS book does not claim to afford a model of pronunciation. It is to be judged as a record of facts." (Professor Rippmann in the Preface.)

"The object of the present dictionary is to record, with as much accuracy as is necessary for practical linguistic purposes, the pronunciation used by a considerable number of cultivated Southern English people in ordinary conversation." "The form of pronunciation recorded in this dictionary may be referred to as 'Public School Pronunciation'; it is indicated by the abbreviation PSP." (Introduction.)

Modern English pronunciation has no creed and no commandments—only conventions and precedents; no system—only phenomena. If system is ever to come, the collection of observed and recorded word-phenomena in this dictionary will be of the highest value; partly because of the exceptional qualities of Mr. Jones, the observer, and partly because of qualities of the medium through which

he has made known his experiences—the script of the International Phonetic Association. The value of this scheme of notation lies in the following two facts:

1. Each symbol represents one definite speech-sound.
2. Not only is each symbol associated with one definite sound as heard in some word of acknowledged pronunciation, but also with some definitely ascertained position and use of the various organs of speech. Thus there is a lasting *liaison* between symbol and sound: to phonetic students each of these symbols means the same speech-sound and *always will* mean that sound.

The Introduction, explaining the plan of the book, is a model of care and thoroughness. Close on 50,000 words are dealt with, over 11,000 being proper names. Under the latter head one naturally turns to places of present day interest. Here we find *'brindizi* (the accent is placed before the stressed syllable), *ˌsæləˈnaikə*, *ˌizmaɪˈi:liə*, *i:pr*, given as the most widely used pronunciation of the several words. The care given to this part of the subject is shown in the recording in some cases of two forms, the latter being used attributively; e.g., *hinˈdu*, *ˈhindu*. We are a little surprised not to find the form *hiˈmɑ:liə* given as one variant of Himalaya, and also to learn that local custom makes the word Lowestoft a dissyllable. In personal-names we should not have thought that PSP. would have tolerated a short vowel in the second syllable of *Æneas*, unless, indeed, the man mentioned in Acts ix, 33, is meant; and we also think we have heard Hobhouse called *ˈhɒbəz*.

Let it be clearly understood that we do not challenge Mr. Jones' accuracy as an observer and recorder. If he says a word is pronounced thus and thus we bow the head in acquiescence. Still, we should like to have the pleasure of a mournful protest against *ˈhaidʒin* and *haiˈdʒi:nik* for *ˈhaidʒi:n* and *ˌhaidʒiˈenik*, and of drawing attention to the fact that PSP is much sounder on liqueurs than music, for it allows *ˈfɜ:tsou* for the Italian (not German) *skætsou* but it bars *ˌmæɹəˈfi:nou* for *ˌmæɹəˈski:nou* (*maraskino*).

We are glad the dictionary does not harbour the *logos a-logos* "pacifist." But why, we ask, does PSP. allow "preventative"? It is PSP.'s fault, we are sure, for our faith in the dictionary is unbounded and our gratitude is very deep.

V.W.P.

A New English Grammar. By E. A. Sonnenschein. Part I, 88 pp. (Parts of Speech and Outlines of Analysis), 1/- net. Part II, 148 pp. (Pronouns, Adjectives, &c., Forms and Meanings), 1/6 net. Part III, 189 pp. (Sentence-Construction, Uses of Forms), 2/- net. Oxford University Press.

PROFESSOR SONNENSCHIEIN has done great service to the teachers of English, and to others who interest themselves in grammar, by writing this book. It was originally inspired, apparently, in an endeavour to meet the recommendations of the Joint Committee on Grammatical Terminology, but he has done much more than would be involved in providing a codified terminology for old grammatical rules. No one can read his chapter on Forms and Meanings, or on the Subjunctive Mood, without feeling the clearness of his teaching. His lucidity of treatment does not, however, always carry conviction. Thus, in dealing with the vexed question of Case, is it just to argue that because our language is capable of conveying to us the same relationships as Latin does by using a Dative or an Accusative form, therefore there must be a Dative or an Accusative Case in English? Would not a like argument give us a Prepositional and an Instrumental Case as we have it in Russian? If Case denotes a category of meaning, then surely a little effort only is necessary to give us as many cases as Finnish, for example. In point of fact, may not usage substitute relative fixity of position, or some form of tonic accent, for Case? And does not the Latin Ablative cover many categories of meaning? These questions occur to the mind of one who has no claim to special knowledge, and the mere fact of their occurrence is, at least, a tribute to the clearness and suggestiveness of the author.

The books are amply provided with exercises, which are the work of Miss Archibald, Head Mistress of the St. Albans High School. J. A. G.

The Rudiments of Criticism. By E. A. G. Lamborn. (191 pp.) Oxford University Press. 2/6 net.

THIS little book is, without exception, the most helpful, and the most inspiring introduction to the critical appreciation of poetry we have come across. It is the work of a schoolmaster who has not lost his soul in the dull routine of the classroom. Nay, more, he has the happy power of cultivating æsthetic sensibility in his pupils. So delicate an appreciation of Autumn's sinister advance as this from a child of 13 is the best possible testimony to Mr. Lamborn's quality:—

AUTUMN

Autumn has come again,
Which is a sign of rain,
And the leaves are falling in hosts,
And the trees are turning to ghosts,
And the birds have ceased to sing,
And the swallows have gone away,
And the world is left ungay,
And the children's voices no longer ring,
And the winds do howl and cry,
And the robin begins to sing.

C. W. HARSE (13 years).

In what must perforce be a short notice, we cannot do justice to the power of the book. Lovers of poetry will enjoy reading it; those indifferent to the joys of poetry can scarcely fail to be touched by it, and teachers who want to avoid the treadmill of the "recitation lesson," which does so much to kill any dormant love of poetry in young children, will find its pages most helpful and suggestive. The new fashion of verse-writing in the teaching of English has surely come to stay, though it is, perhaps, too delicate an instrument of instruction for the entirely un-literary—if such there be.

J. A. G.

The Old Testament for Schools. Arranged and Edited by Canon Morley Stevenson and C. W. Bailey. (xiii+527 pp.) J. M. Dent & Sons.

This volume should find a warm welcome wherever the Bible is a subject of non-expert study. Schoolmasters of every type will find it exceedingly helpful as providing them with just those parts of the Old Testament which are capable of being treated in school. Indeed, boys and girls themselves, because they are so apt to get lost in the great mass of the actual text, and to come to the conclusion that the Bible is a dry book, will be saved from that depressing conclusion if they are fortunate enough to work with the material so ably arranged for them in this volume. From this standpoint it should also find a place in the Training Colleges. It is in effect a manual of method in Scripture teaching, none the less effective because it contains no instructions.

The text is arranged in historical sequence. It contains the whole Bible narrative, omitting such parts as are not suitable for children's reading. The division into chapter and verse is abandoned, and the extracts from the prophetic books appear in connexion with the historical incidents to which they refer.

Both scholarship and teaching experience have contributed greatly to this admirable attempt to make the literature of the Bible really accessible to the mind and heart of young people.

How we Learn. By W. H. S. Jones. (viii + 64 pp.) Cambridge Press. 1/6.

THIS little primer of scientific method for boys is a welcome supplement to the author's pamphlet on *Scientific Method in Schools*, in which the application of inductive methods to problems in grammar, &c., are worked out. Here a short practical introduction to the logic of investigation which boys of sixteen or thereabouts who have already been trained to hunt up evidence, frame and test hypotheses, may read. It is hardly necessary to say that the subject is very simply and clearly treated—the author's name is a sufficient guarantee for that—and, given a teacher with some enthusiasm for this sort of work, we may envy the boys setting to work

upon it. The idea of "scientific method" in school work is, of course, not new, but the fact that a well-known classical teacher should give it attention is a tribute to the influence which the scientific movement in education is exercising right through the school curriculum.

Is it a quibble to ask whether it is true to say that a *candle* must be raised to a certain temperature in order to burn in air? Or to question whether grammar is rightly called "the science of words"?

The Earliest Voyages Round the World, 1519-1617. Edited by P. F. Alexander. (xxiv + 216 pp.) Cambridge University Press. 3/- net. (Cambridge Travel Books Series.)

THIS volume contains the story of the voyages of Magellan, Drake, Cavendish, and Le Maire and Schonten, told in each case by a member of the expedition. Francis Pretty, who accompanied both Drake and Cavendish, is the historian of both. Contemporary maps are reproduced. As the spelling is modernized, schoolboys should have no difficulty in reading these famous human documents. Schoolmasters should be grateful alike to editor and publishers for making them accessible. School libraries and the private libraries of those teachers who are particularly interested in the teaching of geography in its human aspects will be greatly enriched by this series.

Mechanisms of Character Formation, an Introduction to Psychic Analysis. By Wm. A. White, M.D. (342 pp.) Macmillan & Co. 7/6 net.

[An able and interesting outline of Freudian Psychology, written primarily for medical students. Fuller notice of this book is reserved for a later issue.]

BOOKS RECEIVED.

Needlecraft in the School. By Margaret Swanson. (x+129 pp.) Longmans. Green & Co. 5/-.

Froebel's Kindergarten Principles, critically examined by W. H. Kilpatrick, Ph.D. (xii+217 pp.) Macmillan & Co. 4/- net.

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Vol. 4, No. 2.

June 5th, 1917.

The Journal of Experimental Pedagogy AND Training College Record.

EDITED, ON BEHALF OF
THE TRAINING COLLEGE ASSOCIATION,
BY
PROFESSOR J. A. GREEN
(The University, Sheffield).

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PSYCHO-ANALYSIS IN RELATION TO THE CHILD.

BY DR. CONSTANCE LONG.

THE subject of psycho-analysis has an important bearing on pedagogy. Freud developed his concept of the unconscious mind as a consequence of his theory of dream analysis, of which he has the honour to be the discoverer. He found that a part of the adult mind retains a character which can only be described as infantile or primitive. This retained content is naturally unwelcome to the developed personality, and in order to be tolerable must remain unknown or unrealized. This condition is secured by the process of repression, so succinctly discussed by Miss Isabel Lawrence in the December number of this Journal.

The incompatible contents of the mind are relegated to the subliminal or unconscious regions, where they continue operative, and express themselves in wish-phantasies. These may be thrust up above the threshold of consciousness in the form of dreams or day dreams. They betray themselves in such phenomena as moods, inhibitions, prejudices, inspirations, impulsive or instinctive actions, aberrations, slips of the tongue and of the pen.

The unconscious mind contains all that mental life of which we are unaware at a given moment. All we have ever known or thought or felt, or perceived, or dreamed, leaves some traces in the unconscious mind. All that we have discarded as being no longer valuable, or that has such slight associations with the rest of life that we never fully assimilated it into consciousness, all these things exist in one's psyche, and under suitable conditions a personal memory of them may be revived. These elements have at one time been conscious, and can again become so, as the result of more or less effort. Other elements have at one time been conscious, but have been definitely pushed out of consciousness, although the individual may be unaware of the fact, because they were too painful to be tolerated. Other contents have never yet reached consciousness at all, although hypothetically they are capable of doing so. Some of these would serve no useful purpose by becoming conscious, but are survivals of an earlier stage of human development, where they once fulfilled some useful function. Other contents are prevented from ever becoming conscious by the strength of the barrier set up between the conscious and unconscious by our resistances, which may be conventional or cultural or moral. The repressed contents may rush up, unexpectedly, in disguise, perhaps as some emotion which interferes with our clear thinking or free activities. Unconscious material breaks through into consciousness in various ways, spontaneously or against the will; harmlessly, as in a dream; harmfully, as in an outburst of madness, during which outbreak the man lives in his dream, and hence is incorporated with or identified with the unconscious. This is a terrible fate.

The subliminal material is not unconscious in its nature; a certain kind of awareness belongs to it, but this awareness is outside or beneath the ordinary threshold of consciousness. The contents of consciousness vary, so that what is unconscious at one moment may become conscious at another.

Based upon another concept of the unconscious which has been formulated by Jung,¹ we may compare the mind to a figure of three concentric circles. The smallest and inmost of these circles represents the conscious ego; the next represents the personal unconscious; the outermost one the impersonal, or universal, or collective unconscious.

The conscious ego is relatively small; it has contents of a personal and universal nature. The next circle contains all the subliminal material of a personal kind belonging to the individual's life experience and valid for him alone. The outer circle contains all that unconscious material of a phylogenetic nature which we share with all mankind and which is valid for all. It contains unconscious memories that are ours by virtue of our descent from the original bioplasm. Through the impersonal unconscious we are related to the nebulous starry masses of which our earth was formed.

It is a parallel idea that Wordsworth expresses in his Ode when he says:—

Our birth is but a sleep and a forgetting;
The soul that riseth with us, our life's star,
Hath had elsewhere its setting,
And cometh from afar;
Not in entire forgetfulness,
And not in utter nakedness,
But trailing clouds of glory do we come
From God, Who is our home.

This view point gives us an idea of the richness of the undifferentiated primitive psychic material which is the foundation of our conscious ego, and supplies our imagination and dreams with their "shaping fantasies" of beauty and of fear. We can say with du Prel,² "consciousness does not exhaust the ego."

An interesting classical example of two ways in which the unconscious mind works is seen in the Babylonian story of Nebuchadnezzar's dream.³

The story runs as follows:⁴ Nebuchadnezzar obtains a warning from the heavenly powers; he says "a message from a watcher and a holy one came down from heaven"; he "saw a dream, had thoughts in his bed, and visions in his head troubled him." He was warned, as Daniel interpreted the dream to him, that he was as a mighty tree, under which the beasts of the field took shelter, were fed and rested, but that having overstepped the limits of his power and over-exalted himself, unless he cut off his power, and stripped himself of his pride, and scattered his fruits and left only a remnant of himself, that his heart would be changed from a man's to a beast's. Daniel pointed out how he might evade his doom, saying "Wherefore, O King, let my counsel be acceptable unto thee, and break off thy sins by righteousness and thine iniquities by showing mercy to the poor: if it may be a lengthening of thy tranquillity."

It was clear that the heart of the king had already gone far on the road to become that of a beast, for in spite of his appreciation of the meaning and value of the dream, and the honour paid to Daniel as "one who was able, and in whom the spirit of the holy gods dwelt," we find him a year later disregarding the interpretation and still ignoring his task of stripping himself of his power and his pride and his riches. He still neglected to show mercy to the poor; objectively the poor people

¹ *Collected Papers on Analytical Psychology*, 2nd edition.

² "The Philosophy of Mysticism." ³ Daniel chap. iv. ⁴ Daniel iv, 4 et seq.

in his kingdom, subjectively the poor and undeveloped parts of his own nature. Hence the doom foretold in the message from his own unconscious, fell suddenly upon him. He became like the beasts of the field, and in his madness he ate grass like the ox, and he was driven forth from men in accordance with the custom of his time, and his body was wet with the dew of heaven. Only after a long time was his reason restored to him, and out of his sufferings he could praise the King of Heaven, who "was able to abase those that walked in pride."

This is a beautiful example of the two ways in which the unconscious works—first it called attention to itself in a dream; next, the warning neglected, it broke through into consciousness and possessed the man; he now in an attack of madness lived in his dream, which formerly he had regarded objectively. In the first instance the man had the unconscious, in the second the unconscious had the man!

This story aptly illustrates another point of importance for our subject, namely, that the dream contains a *manifest* and a *latent* content. The manifest content is that part of the dream which is remembered on waking, which is generally a remnant of something much more extensive. It cannot be interpreted until we have obtained information about the latent content. You must not imagine psychoanalysts arrive at their interpretations as easily as Daniel appears to have done; there are intervening steps of fundamental importance which Daniel's skill may have allowed him to overleap, or which more probably are left out of the Bible narrative. Dream analysis is not guess work—it is a technique; it follows laws. Only on unearthing the latent content, by following the free associations of the dreamer and bringing them into intelligible juxtaposition can we arrive at the meaning of the dream. Our material is somewhat like the mixed pieces of a jig-saw puzzle; we sort, we fit, we make trial, we reject piece after piece, until slowly and laboriously the parts are arranged, and we have the complete picture. This is a work requiring great patience and observation. There is no magic about the process, though the effect is magical, on account of the insight it gives into the problems of human psychology.

It may be asked—What evidence have we of the activity of the unconscious mind in the child?

First and foremost, we have the dream. The ordinary night dream takes place when consciousness is in abeyance; what we recall is, of course, that remnant which is left over in consciousness. The impression is liable to fade quickly because in the ordinary course of events we pay it little attention, and hence link it up with few associations. But night dreaming is not the only form of dreaming, as all teachers know. Day dreaming is of equal, if not greater, importance. This is "undirected thinking." The dreamer builds fantastic palaces and, directly or indirectly, is the hero of his romance, wise, witty, or wicked, according to his wishes. The psychic energy flows along the line of least resistance, the direction determined by the subconscious wishes of the moment, in a stream of ideas and images connected with one another by mere association. Jung says:¹ "We have two forms of thinking, *directed thinking* and *dream or phantasy thinking*. The first, working for communication with speech elements, is troublesome and exhausting; the latter, on the contrary, goes on without trouble, working spontaneously, so to speak, with memories. The first creates

¹ *The Psychology of the Unconscious.*

innovations, adaptations, imitates reality and seeks to act upon it. The latter, on the contrary, turns away from reality, sets free subjective wishes, and is, in regard to adaptation, wholly unproductive."

The charming part of such mental activity is that it fulfils the heart's desire with an ease that makes the dull facts of life seem very tedious. Herein lies its peril; it absorbs too much energy and attention, and distracts the child from the tasks of the moment. By it he escapes real thinking, intellectual work which would involve effort and perhaps a modification of conduct. Sometimes the day dreaming takes a precise and limited form, and makes a more or less finished picture, which we call a phantasy, which rises from the unconscious and is superimposed upon the conscious thinking.

I must not leave an impression on your minds that phantasy is always mischievous. Far from it! It serves very useful purposes, too. In due proportion it is a refreshment to the mind. It is also a means of understanding and interpreting the universe. In primitive times man always explained what he could not understand by making phantasies or myths about phenomena. We could have no better example of this than in the Genesis story of Creation. The explanation is a projection of man's own psychological understanding; it is his interpretation of the facts, which served a noble purpose at that stage of his development. It delivered him from fear, it gave him faith, and led him on in his spiritual development through law towards grace. When, ages later, the scientist disclosed the work of the Creator, in the rocks and stones, and learned of the age-long evolution of the earth and its inhabitants, those who could not give up the literal interpretation of these once useful phantasies, in exchange for the new truths, were forced back into regressive paths.

This conflict is well outlined in a book I shall have occasion to quote several times in this paper, viz., "Father and Son." It tells of the differences of interpretation and understanding that arose in two generations. The elder Gosse, who was a naturalist of repute, was confronted with the facts of evolution. These clashed with the beliefs consequent upon his theological standpoint. Unable to effect a reconciliation between the two in his mind, he turned his back on science. The mind that refuses to move on because the path is difficult and obscure, and even dangerous, tends to become fixed and unconsciously infantile. The father was outstripped by the son. The deepest tragedy does not lie in the forward push of the son, nor in the backward move of the father; it lies in the fact that the ties of love and obedience on the part of the child, and the weight of parental authority, often prevent the new generation from the liberation of thought and action that should belong to progressive life.

Let me call your attention to a dream of the younger Gosse. It was a recurring dream of his childhood, in which, "bound hand and foot, helpless and terrified, he was carried on a galloping steed, always making for a goal;" he could just see that goal, a ruby coloured point waxing and waning, and it bore, or, to be exact, consisted of the letters of the word "carmine." This vision caused him inexpressible distress, but later on he says: "The fact that the word 'carmine' appeared as the goal of my visionary pursuits is not so inexplicable as it may seem. My father was at this time producing numerous water-colour drawings. . . . These he executed in the manner of a miniature with amazing fidelity of form, and a brilliancy of colour which remains unfaded after

fifty years. By far the most costly of his pigments was the intense crimson which is manufactured out of the very spirit and essence of cochineal. I had lately become an imitator of his works of art, but was strictly forbidden to let a hair of my paint brush touch the little broken mass of carmine which was all he possessed. We believed, but I do not know whether this could be a fact, that carmine of this superlative quality was sold at a guinea a cake. Carmine, therefore, became my shibboleth of self-indulgence; it was a symbol of all that taste and art and wealth could combine to produce."

He then relates a definite phantasy, produced in consciousness. "I imagined," he says, "that at Belshazzar's feast the loftiest *épergne* of gold, surrounded by flowers and jewels, carried the monarch's proudest possession, a cake of carmine."¹

From the analytical standpoint, carmine symbolized the glory and power of the father and the suppressed unconscious desires of the child towards him. The ill-health and neurosis from which the little lad suffered were evidence of the application of his psychic energy to these unconscious phantasies. His mental sufferings and struggle for his own individuality in later years showed the severity of the unconscious conflict.

Absent-minded acts are symptomatic of repressed emotion and interest.² Such lapses always have their origin in the subconsciousness. This is also true of much forgetting. It is caused by a resistance or emotional opposition to something not clearly realized. The emotion is misplaced or transferred to some associated object. For example, a child forgets to bring his smudgy exercise book to class, and when he has incurred his teacher's rebuke he pinches or quarrels with his sister by way of getting rid of his own hurt feelings. Discipline and respect prevent his venting them on his teacher. Here the psychic energy is not applied at the point of stimulus; it is a back-wash, so to speak, the result of an obstacle on the path, but at some distance from the commotion.

This phenomenon is better understood if we accept Jung's concept of psychic energy; it is known as the libido theory.³ This energy is a hypothetical force which operates in the psyche. It is analogous to physical energy in the physical world. A definite amount can be applied here or there. A violent disturbance in one place implies a diminished effect elsewhere. This psychic energy is operative in the conscious or in the unconscious part of the mind. At night in sleep it is nearly all with the unconscious, as the dream demonstrates. By day it is, or should be, mostly with consciousness. A misapplication of this energy produces a splitting or thinning of the stream of attention, and a weakening of the individual. Such a thinning of the stream of attention naturally tends to make a child difficult to teach, and to interfere with his memory, his prompt obedience, and his reliability generally. He is not "on the spot," which means that a part of him is on another spot.

Attacks of lying that are so common in childhood have a meaning which can better be understood when one realizes that the psychic energy thus displayed serves some purpose in the child's mind. Such attacks may arise from an over-vivid phantasy wherein the dream life is so real that distinctions are not clearly drawn between fact and idea;

¹ *Father and Son*, p. 173.

² *Psychopathology of Everyday Life*, Freud.

³ *The Theory of Psycho-Analysis*. Nervous Mental Diseases Monograph Series, No. 19.

here the child is mixed between what is subjective and objective. Or they may be a device to aggrandize the self; this kind often occurs with depreciated children. A little girl of eight recently returned home from a walk in the park declaring she had met Mr. A., a person in whom her elder sisters were interested. The lie had no other purpose than to call her sisters' attention to herself, and so relieve her self-depreciation. This, though undoubtedly a deceit, has a very different origin from lies told for purposes of concealment. Some children would rather be naughty and receive punishment than be ignored.

Children often tell lies from the unconscious impulse to take revenge on the powers that be. Two little girls were at their mother's garden party. The Bishop's wife noticed them and asked them their names. To their parents' annoyance the elder answered "Sodom," and the younger instantly chimed in, "And mine's Gomollah!"

One child will exert power over another by means of the phantasy he invents and imposes. It appears that Sodom used to terrorize Gomollah by such a phantasy. She was a timid, podgy child, "as fat as a pig, therefore she must be a little pig indeed, taken from the sty and adopted as an experiment." Whenever she was tiresome in the manner of younger sisters, Sodom threatened her with a return to the pigsty—it was the proper place of punishment for fat and naughty babies. No one at that time knew why Gomollah always shrieked whenever she accompanied the grown-up members of the family on their Sunday visit to the pigs, nor why a certain wink of Sodom's would always reduce her to instant submission. If in later life a patient in an asylum calls herself Gomollah, and makes noises like a pig; or if some nervous ailment supervenes in which she gets an attack of asthma whenever she sees a pig even in the distance, one may fail to find the links. They will certainly not be in the conscious mind, and could only operate where the emotional content was heaped up and fed from other sources.

It follows from what I have said that our method with children must differ considerably from that we employ with adults. This is partly because the child is so much nearer the unconscious. If we can catch "the growing boy" before the "shades of the prison house" deepen too grimly, our task is relatively easy. As yet his conscious and unconscious are little differentiated. Repression and the abundance of experience and objective thinking have not yet resulted in a complete separation of the two spheres of the mind, but the unconscious content passes readily over into consciousness. The child does not early separate subject and object; he lives in his dream, and cannot clearly separate himself from his phantasies.

It is useless to ask a child a direct question about things of importance to himself. He early learns to evade the questions of his elders, and here his attitude is like that of primitive man. I was recently talking with M. Willmoes D'Obri, who has lived long in the Belgian Congo. He told me no native of those parts will give a direct and true answer to a stranger. One day earlier in his sojourn in the Congo he was sitting with a primitive by a camp fire. The native suddenly picked up a stone and threw it. M. D'Obri did the same, remarking, "Oh, do you do that too?" The native, however, was not to be entrapped so easily into giving his confidence, and only long afterwards did the questioner learn that the stone was flung at the eyes of the dead who haunt camp fires.

He told me another story of a certain well-known anthropologist of European fame, who was making researches in folk-lore. One night M. D'Obri heard a great palaver going on in the village, and asked his servant the meaning of it. The reply was that the chiefs and the young men were making up stories to tell "the Old Sheep," which was the nickname of the learned traveller. How many travellers have been misled in this way; what they hear are often the phantasies rather than the histories of the peoples. Such material has a psychological value, but not of the kind desired. Who has not fallen a victim to similar plots on the part of the youngsters? The anthropologist here fails to enter into the mind of the primitive and so gain his complete confidence, just as the grown-up person fails to enter into the mind of the child. If we would have clear insight into the child's mind we must thoroughly know the working of our own, and that on its infantile side.

This view is well illustrated by Gosse junior. He says: "The discretion of little boys is extraordinary. . . . I had grown cautious about making confidences—one never knew how awkwardly they might develop, or to what disturbing excess of zeal (on the part of my father) they might precipitously lead. I was on my guard against my father, who was only too openly yearning that I should approach him for help and comfort, for ghostly counsel." This motherless little boy had night terrors and terrible dreams. His father sought to exorcise by prayer what he regarded from his antique standpoint as the devil. He would pray at his bedside, the child striving hard to keep awake. "One unhappy night," he writes, "I gave even worse offence than slumber would have given. My father was praying aloud, in the attitude I have described, and I was half sitting, half lying in bed, with the clothes sloping from my chin. Suddenly a rather large insect, dark and flat, with more legs than a self-respecting insect ought to need, appeared at the bottom of the counterpane, and slowly advanced. I think it was nothing worse than a beetle. It walked successfully past my father's sleek black ball of a head, and climbed straight up at me, nearer, nearer, till it seemed all a twinkle of horns and joints. I bore it in silent fascination till it almost tickled my chin, and then I screamed 'Papa! papa!' My father rose in great dudgeon, removed the insect (what were insects to him!), and then gave me a tremendous lecture.

"The sense of desperation which this incident produced I shall not easily forget. Life seemed really to be very harassing when to visions within and beetles without there was joined the consciousness of having grievously offended GOD by an act of disrespect. It is difficult for me to justify to myself the violent jobation which my father gave me in consequence of my scream, except by attributing to him something of the human weakness of vanity. I cannot help thinking he liked to hear himself speak to GOD in the presence of an admiring listener. He prayed with fervour, in pure Johnsonian English, and I hope I am not undutiful if I add my impression that he was not displeased with the sound of his own devotions. My cry for help had needlessly, as he thought, broken in upon this holy and seemly performance. 'You, the child of a naturalist,' he remarked in awesome tones, 'you to pretend to feel terror at the advance of an insect?' It could but be a pretext, he declared, for avoiding the testimony of faith in prayer. 'If your heart were fixed, if it panted after the LORD, it would take more than

the movements of a beetle to make you disturb oral supplication at His footstool. Beware! for GOD is a jealous GOD, and He consumes them in wrath who make a noise like a dog.’”

This example belongs to a phase of life and faith that has passed away; the exact form of the little tragedy is not likely to be repeated. What is constantly being repeated, however, is the blindness to those faults of the adult psychology that are foisted, by projection, on to the child.

Let me give an example. I will call the child Freddie. He is a boy of eight, undersized, with thick curly hair, wears spectacles, and has a pasty complexion and a furtive expression. He is extremely intelligent. He was brought to me because he was constantly giving trouble at school with thieving and lying. He had a curious power over the other children, and I will tell you some of the things which were reported to me.

One day he started with his teachers and schoolfellows on a railway journey with a halfpenny in his pocket, and a copy of “Comic Cuts.” He ended his journey in possession of elevenpence. He had sold halfpenny peeps at his “Comic Cuts” to his companions and so accumulated all their wealth.

On another occasion he possessed one farthing; another little boy brought some toy wax candles to school. Freddie bought them from him, but there were no matches with which to light them. He promptly suggested that this other boy should spend his farthing in lights, which he submissively did. Thus the farthing bought all, and yet justice was not infringed! From these stories you will see that the boy is clever and resourceful; he would naturally overpower the lesser intelligences around him. He is the child of a *mésalliance*. His mother, a pretentious woman deserted by his father, works in a large retail business house in London. The father is said to be a rich American. It is certain there had been times of comparative affluence in the child’s life; these coloured all his phantasy.

One of his recent delinquencies had been a theft of paint brushes. I was anxious not to question the child directly about this until he gave me some reason for doing so. For this purpose, and in order to get at other points in his psychology, I made use of the word-association test.¹ I do not know if this test is familiar to you. The plan is to select a number of words in common use; these we call stimulus words; we ask the child to reply to each with the first word that comes into his mind. This reply is called his reaction. The time taken in the reaction is recorded and any peculiarity noted. Usually a delayed reaction, or any peculiar one, is evidence of some emotional disturbance evoked by the stimulus word—this word acts to a certain extent like the thing it symbolizes. I had, in addition to the use of this scientific test, an aid from the child’s unconscious, in a symptomatic act. Whenever he was disturbed in his mind he would give himself away by the utterance of a little clucking sound.

In arranging the 25 words used for the test, I strung together certain words that would have a cumulative effect upon the emotions. The result was very striking. When the word paint-brush was reached he betrayed his agitation by a cluck, which developed into a series as the succeeding words were given. The reaction time was markedly retarded. The child suddenly became suspicious of me, and was

¹ For particulars of this test see *Collected Papers on Analytical Psychology* (Jung), p. 94 *et seq.*

determined to outwit me. He hit upon a device I have never before met with. I gave him the word cannon. Thereupon he made a tactical move and associated most of the subsequent words with this one. In response to my stimulus word, to which he did not even listen, he shot out rapidly a succession of words like Zeppelin, aeroplane, blue, airship, gun, camp, khaki, &c. This deliberate attempt to conceal himself, of course, really had the effect of showing his anxiety. The value of this test has been proved in countless cases, otherwise to quote it in an isolated instance would be unjustifiable; but this example is useful in showing how impossible it is to keep the emotional content of the mind in abeyance under the circumstances of the test. You can easily see that it would have been useless to ask Freddie direct questions as to why he did and said such and such things; he would have been on the defensive at once.

One day he was asked to sing his favourite song. He chose "JESUS loves me." When asked who JESUS was, he said, "He is a nice, kind man like my daddy."

I got him to talk to me about his favourite story, and asked him to make a drawing to illustrate it. The favourite story proved to be one of Hans Andersen's, called "The Little Matchgirl." This is a pathetic tale of privation, in which the little girl strikes match after match, seeing beautiful, wish-fulfilling visions each time, and finally falls dead in the snow, the victim of cold and exposure.

This is the story Freddie was supposed to illustrate, and it was interesting to see the picture he produced. In the forefront was the matchgirl, carrying a plentiful supply of match boxes; she had very masculine features and an air of grim determination. Behind her stood an elegant gentleman in a top hat and long overcoat, with beautiful boots and an umbrella! When I asked him to explain the story, he said in his curt little way: "She finds a man she likes; he goes and marries her, and they go to a restaurant to have dinner—a beautiful place, all lights and things." He added later that this man was a rich American.

Now, here we have a curious and informing thing. The boy had heard the story of "The Little Matchgirl" only that very day, and yet a few hours later, when asked to draw it and tell the story, he has added to it an entire creation of his own phantasy, quite different from the original story, and as completely wish-fulfilling as the visions of the little heroine. How comes this about? Does it give us any insight into his psychology? To the trained analyst this added phantasy, which is the product of the child's unconscious mind, is of utmost importance. I do not know whether I can make the deductions convincing to you; to me they are so, because I have analysed many thousands of dreams and phantasies of adults showing similar mechanisms—having a similar psychological cause and aim.

The deductions are these. The little boy identifies himself with the matchgirl. In the story she is taken to heaven. This is not the kind of happiness Freddie wants. But he, too, desires to be delivered from privations and strike bright lights and see beautiful visions. He lives with his mother, who works for her bread; he is her sole companion in their one room. His memories of greater comfort and evanescent splendours are connected with a glorious, half-mythical father, and all the tales of wonder his mother tells him are of a rich American who for a brief spell delivered them from dullness and

hardship. Here his mother's phantasies and experiences become his own by adoption, and through the medium of the little matchgirl he identifies himself with his mother, and is thus rescued by the man of the picture.

Now, it is a fact verified by thousands of dream analyses, that the dreamer appears in various guises in the dream. Our little boy is here also present as the dashing and powerful father, who can transport him to happiness, all by the simple magic of marriage.

Here is a modernized fairy prince who becomes the husband and deliverer of the mother—a fond wish of his childish heart. His phantasy represents his compelling attachment to the mother and shows him in the rôle of the powerful father, a rôle which turns up again and again in his dominating attitude to his school companions. His financial operations, you must admit, have an American flavour also, in which he makes his corners in "Comic Cuts" and candles. This story illustrates the undue spiritual and mental bondage of the child to one or other of its parents. The phantasy¹ which embodies this bondage acts emotionally like a predisposition or prejudice. Freddie's conduct shows trends which belong to this unconscious attitude.

The circumstances of the boy's life were such as threw him into too exclusive relationship with the mother. Already in his unconscious he was so bound to her as to weaken the ordinary influences of school and education. A stronger power than his teachers' held him, and one which they were not in a position to combat. With more happily-placed children, life itself tends to break up these too close bonds, but here all the external circumstances reinforce the influences that are going on in the unconscious.

This child was naturally imaginative, and the circumstances of his life as well as his psychological bias led him to heap phantasy upon his mother, thus increasing her power over him.

Just how such an unconscious bondage does sometimes influence a life recently came under my notice in the case of a young man, a boy who was sensitive, imaginative, and clever, and very devoted to his home. He was sent to a preparatory school, where he got all sorts of illnesses, infectious and otherwise, and was constantly being sent home to be nursed, or having a term off. Later he went to a public school, and six weeks turned him into an invalid, so that he was pronounced unfit for school life. He was next taught by tutors at home, and later went to college, where after a few weeks he broke down, and had to be sent home as a "case of nerves." He was able to take his degree, and do his mental work passably well from home, but is not able to take up a career that takes him away from home, and is unfit for military service.

The key to a child's inability to work well, or fulfil the ordinary requirements of a healthy school child, is often to be found in his home life; and when this is the case, it is in that direction that the fundamental changes should be made.

My next case is of a little girl of thirteen. She is brought to me on account of nervousness. She has a morbid fear of wasps, she cannot leave her parents' care, and is a great tax upon them. This fear of wasps keeps her much at home in the summer, interferes with the opening of windows, and the family holiday, &c. She is somewhat

¹ See the "incest motive" of Freudian psychology, which is not to be taken concretely, but indicates an unconscious psychological adaptation to the parents.

precocious in her physical development, unusually mature for her age. She is distressed at all the signs which assure her she is growing up, and though she is perfectly well, she insists periodically that her mother should wash her and treat her as if she were a young child again.

We had many talks, and sometimes we analysed dreams. These were chiefly of Zeppelins, which came hurtling through the sky. She was very frightened of them, for her father was a special constable, and when they came he had to leave home. One day, we discussed her favourite story, which was Hans Andersen's "Little Mermaid." In this tale the little mermaid makes a great sacrifice in order to become a mortal and experience human love; however, she finally renounces her human love and her prince in order to follow the higher spiritual developments of her nature. The choice of this as the favourite story is not without its significance for Phyllis, as you will see.

Another day she brought her doll to me. This is a huge doll, the size of a child of a year old. The interesting point was that Phyllis had only recently taken to playing with dolls. She used to be a great bookworm, but lately had developed a perfect passion for this doll, spending hours making its clothes and talking to it. In her talks she would assume the rôle of mother, nurse, father, teacher, &c., and answered for the doll in a special voice. Her talks were clever and amusing. The mother rather encouraged this pastime as taking Phyllis away from her books, and leading her to the useful arts of sewing and laundering.

All this was incompatible with her intellectual development and appearance, for she was a beautifully-grown girl of thirteen, tall and rosy, although she had an abrupt and suspicious manner, and an aggressive way of speaking. With her relatives she was positive and dictatorial, and rough in her demonstrations of affection. She was, however, a delight to her teachers on account of her mental ability, but a disappointment because of the inequality of her work. Her intellectual was far in advance of her emotional development, hence she cut a better figure at school than at home.

Amongst material that came up for analysis was a little poem written some months earlier. The choice of the subject of the poem is again of great significance, and I would like you to take note of the problem with which the phantasy from her unconscious is engaged.

APOLLO AND DAPHNE.

1

There lived in Greece, full long ago,
A beauteous nymph who wielded bow;
And youths, struck by her lovely face,
Came wooing her from every place.

2

But not for loving youths cared she.
She begged her father she might be
Left single, just to hunt her prey,
Nor did her father say her nay.

3

It happened that Apollo had
Insulted Cupid, so the lad
Thought on the god revenge to earn,
And made him love without return.

4

With arrow gold he pierced his breast,
And made him love the nymph with zest,
While her he shot with leaden dart,
So that fierce hatred filled her heart.

5

Apollo saw her in the chase,
She would not look upon his face;
The Sun-god sought to make her stay,
Daphne the nymph ran fast away.

6

By water, wood, and fields they passed,
But Daphne's strength was failing fast.
Loud for her father's aid she cried,
She would not be Apollo's bride.

7

Her father to her prayer did hark,
Her limbs were soon enclosed in bark.
Covered in leaves from neck to knee,
She had become a laurel tree.

8

Apollo kissed the tree in vain,
He ne'er would see his love again.
"This wreath," he cried, in sorrow dire,
"Shall crown my head, my heart, my lyre.

9

"Its branches shall be evergreen,
On victors' brows it shall be seen."
And ever since the laurel tree
Has been a sign of victory."

Without going into further details, let us examine the problem shown to exist in this child's unconscious mind. What we see of the disturbance is a surrogate, a symbolic substitute for the real conflict; the symbol is an extreme fear of wasps, with all its consequences.

The problem, however, is the coming of love, and the adaptation that life demands from the child in order that she may become not only an intellectual scholar, but a good human being. She does not want to grow up. To verify this we look at the dreams and phantasies, for they are always ahead of the experiences of life, and though they have their origins in past experiences, and show unredeemed tendencies and primitive wishes, they also have an important bearing upon the future life and development. They form a bridge from the past to the future.

Children who are neurotic, that is extra sensitive, often develop nervous symptoms at puberty just because this is a stage when a great amount of new adaptation is required. The childish dependence must be given up, if the human being would fit himself or herself for maturity. Here the child is at a point where she must develop her emotional life, which in the case cited is so far behind the intellectual life. This demand is the obstacle with which life presents her; this is the spark which causes the conflagration already prepared in the subconscious. Afraid of the task, which is only unconsciously realized, she turns back to a childish attitude. Instead of going on and learning to deepen and express her love for her mother, her teachers, and her friends, she takes a leap backwards and, by means of her phobia, once more establishes herself as a little sheltered child, whose appropriate home is in the arms of her mother. Hence her favourite story depicts

in the guise of "The Little Mermaid" one who loves an impossible prince, and is therefore unable to marry, and escapes the practical and difficult experience of human love by following her spiritual aims.

The poem of Apollo and Daphne tells of a nymph who, when pursued by the great god Apollo as a lover, flies him, and seeking the protection of the father, continues her existence in the vegetative form, thus becoming fixed in a certain stage of her development. Phyllis's choice of a doll as a plaything, at a time long separated from her real interest in such toys, is brought about by the heaping up of her psychic energy, which, unable to go forward to fill the new channels of duty and self-dependence, flows back into old paths, and reanimates interests which now are better foregone.

The value of psycho-analysis shows itself in a case like this. It is not possible for such an intelligent child to understand the situation without wishing to alter it. She was formerly quite unaware how forcefully her unconscious mind was directing her life, or how important it was for her to recapture the energy which she was unknowingly applying to her phantasies. I do not think any amount of argument solves a case like this, but the material of the unconscious is self-convincing when it is analytically interpreted.

I must emphasize the fact that in psycho-analysis *the work is on the unconscious mind*. Many misunderstandings of the method arise here. In some of the cases reported, in American literature especially, this fact is not sufficiently understood. Sympathetic insight into and handling of a child's troubles is *not* psycho-analysis, though it often works so well and efficiently that no further treatment is needed. Psycho-analysis comes in just when this fails, because it is a technique for reaching what is unconscious or subconscious in the mind, and that by a special and difficult method which only a fully-trained analyst can pursue. I have seen it stated that "the chief requisites for psycho-analysis are a thorough knowledge of psychology, great patience, and a sympathetic attitude." These are indeed important, but one indispensable requisite is omitted, that is, that the analyst must have a thorough knowledge of his own unconscious mind; hence I would say emphatically that no one is competent to undertake the psycho-analysis of a child who has not first submitted himself to a thorough analysis. Unless he knows and allows for his own complexes and tendencies he will inevitably project some of his own unredeemed infantile views on to the child. Moreover, he must delve into the infantile processes in his own unconscious to be able to interpret what he finds in the precious but delicate little mind under review. It is as if an oculist who was unaware of the degree of short sight that belonged to his own vision should prescribe glasses for a patient. In such a case he would be in danger of adding his own error of vision to that of his patient.

As yet, psycho-analysis has been but little directly applied to children, that is, in the sense in which I speak of psycho-analysis, as a technique for the understanding of the unconscious.

There are reasons for this. It results in a kind of re-education. Parents and teachers are not very willing to believe that the little child of their love and care needs re-education so early, and they often think, and naturally, that the doctor is the last person to undertake this. I am willing to concede that parents and teachers should be the best psycho-analysts, only the one essential condition is lacking, they have not themselves been analysed. Hence they still carry unaware

to themselves in their unconscious marked traces of their own infantile mind, and this operates to prevent a fair and detached attitude. The book *Father and Son* is full of instances showing how a deeply-loving parent and docile and devoted son may react disastrously upon one another.

There are two extreme types of parents and teachers—those who avoid the obvious errors of their own upbringing by falling into the opposite ones; and those who hold by everything that has gone to make them, under the impression of the excellence of the results achieved. An extreme attitude is to be avoided. The solution of the immediate problem is not in the mind of the parent or teacher; it is to be found in the mind of the child. A fundamental axiom in psychoanalysis is: *Follow the mind of the child; let it direct the path of the conscious endeavour.* The child's dreams and phantasies give a clue to his behaviour, and afford guidance to his endeavour. Often they hit the mark in a plain and direct manner, and clear up puzzles which are otherwise insoluble. I have an idea of the way in which psychoanalysis will reach the child, and that is through the teacher. I entertain a phantasy of my own, that in no very distant future teachers will themselves seek to be analysed, not because they are ill or neurotic, but because they desire to take into account, in a practical and understanding way, the subconscious mind of their pupils which hitherto has had far too little attention.

EDUCATION OF WOMEN IN MEDIÆVAL FRANCE.

By FRANCES COLLIE, M.A.*

THERE still remains much work to be done in investigating the history of women's education during the Middle Ages. The period is difficult because records are scanty, and education in the modern sense, with its elaboration of schools, universities, books, and committees, did not exist.

We are, perhaps, apt to forget that what we now consider the essentials of our system are, after all, only the scaffolding, and to imagine that the study of the ideals and social life of a period which had no such machinery, is of little value in comparison with an investigation of school records and treatises on method. But a history of mediæval education will be incomplete until we know what manner of life the women led and how they prepared their children for that life; what was their attitude towards Religion, Art, and Literature, and what part they took in the management of their own households. To answer such questions as these, we must consult records of various types, and the following extracts are taken from French manuscripts of the thirteenth century.

The first, "Les Quatre Tens d'Aage d'Ome," was written by Philippe de Novaire (born in Novaro, Piedmont, and died 1270), a lawyer, who played an important political rôle in the service of the King of Cyprus, Henry II.

The manuscript has been edited by Marcel de Fréville, in the *Société des Anciens Textes Français*, 1888.

* The author is indebted to Mmle. Jeanne Moos for help in the translation.

The book is concerned with the behaviour of men and women through infancy, youth, maturity, and old age. The style is discursive and confused.

I.

Les Quatre Tens d'Aage d'Ome.

BOOK I. INFANCY.

- §21. We have spoken of the boy ; let us now consider the baby girl. All persons of either sex who have the care of infants should teach and instruct them very carefully. A woman should not be too talkative, nor a speaker of evil words, nor a doer of evil deeds. For if she speaks evil she will be answered with evil.
- §22. A woman should protect her body from evil, for when one has sinned it is made a reproach.
- §23. No woman, whatever her position, should be extravagant. As a child she should not be allowed money with which to buy presents to give to her relations and to others. It is fitting that she should be poor ; hence the proverb, "*Il est plus pauvre que pucelle.*" When she is married, if both she and her husband are extravagant the household will be ruined. If the husband is avaricious and the wife generous, she is a reproach to him. Only one extravagance is allowed to a woman, and that is almsgiving—provided that her husband is willing and that they can afford it.
- §24. All women should be able to spin and sew ; for the poor it is a trade, and for the rich it enables them to understand better the work of others. All should be taught to be good housekeepers ; the poor in order that they may be able to work, the rich in order to instruct others. This they should be taught in their youth, and they should not despise it, for the Holy Mother of GOD was not ashamed to work and to spin.
- §25. A woman should not be taught to read and write unless she is destined to become a nun, for evil can happen to a woman by reading and writing. It exposes her to insults from a man who might write letters to her or say in love-songs or in rhymes what he would not dare to say by mouth or by messenger ; and even if she has no inclination to do evil, the devil is so subtle and so clever at causing people to sin that he would soon give her courage to read the letters and to answer them.
- §26. A woman must avoid the company of men, for evil might arise from it. Those who have the care of young girls should look well after them, and keep them from the company of evil women and of men. Evil women will give them bad counsel ; they like to be go-betweens in love affairs. Sometimes they spread lies which can ruin the reputation of young girls. The society of men is to be avoided, for evil might result.
- §27. Every possible care should be taken of children, and they should be severely chastised in word and in deed, for infancy is the foundation of a life, and on good foundations are built large and strong edifices. . . . Great trouble should be taken to instruct them, and they should endeavour to have a pleasing and sincere expression. They should not lift up their eyes ostentatiously or cast them down.

They should look straight in front of them, without turning to the right or to the left. They should not stop in front of windows or elsewhere, but should walk quietly.

§28. When women come together to weddings or to other festivals they should guard against too much jesting or familiarity; rather they should be a little haughty and proud. . . . It is fitting for a woman to speak little, for in too much speaking there is sometimes folly.

§29. It is an admirable thing for women to be well brought up, and to possess a good bearing. They should all willingly be instructed and remember what they learn, for many a poor girl has been chosen to become a rich lady and has made a grand marriage by reason of her good reputation, and many a wealthy lady has been rejected on account of her bad reputation and foolish bearing, and has lost honour and marriage. Sometimes good bearing and wise deportment have been of much value to a woman who has acted ill, and, on the other hand, some have been villified and condemned who have done no wrong. It is often said that one cannot prevent a woman from doing evil. This is not at all true. Before she falls one can turn her mind away from many a foolish deed by good counsel, and, thanks to an unwearrying vigilance, the occasion for evil may be removed. The less there is of evil, the less there is of shame.

§30. It is said that women of evil life bring up their daughters well, because they know the consequences of foolish bearing and foolish actions. This is, however, not true, for when such mothers wish to reprove their daughters these reply: "You did such and such things, I know very well." In this way they close their mothers' mouths. But good mothers dare to say everything.

§31. Men should be tall and strong and wise, and a woman, if she is chaste, can conceal all her other faults and carry her head high. For this reason instruction is not so important for girls as for boys.

BOOK II. YOUTH.

§86. You have heard what I have said about young men; now listen to my words about young women, who are in great peril in their youth, for they are not so stable as men, nor so well intentioned. There are always good women, by the grace of our Saviour; nevertheless, all have need of help from those in whose care they are, whether fathers, or relations, or husbands. It is necessary to take great care of them, and to remember that "a castle which is never attacked is never taken."

§87. Their husband is the one who can help them most by giving them in an honourable manner all that is necessary for their maintenance. Their husbands should love and honour them, so that they will not be driven to do evil. It is of the utmost importance that they preserve their chastity, for a woman's reputation is quickly lost, and a very small thing will prevent her from being honoured for the rest of her life.

§89. This, then, is what happens to women who lead an evil life. It is not at all the same with men; this particular sin is not considered so serious for them: they even have vain-glory when it is known that they have beautiful, young, or rich mistresses, and their family

honour is not stained. Women, however, when they are accused or convicted of evil are dishonoured themselves, and the honour of their family suffers.

§90. Accordingly it follows that a woman should guard against the appearance of folly and a foolish demeanour, for appearance is quickly converted into action. And if there is no evil, the less talk will there be. What is said is believed, and does more harm than the deed itself. Many women have a worse reputation than they deserve.

§91. It is a disgrace if fingers are pointed at women when they arrive in an assembly or at a festival or a marriage, and people begin to laugh and talk in a low voice. It is a poor excuse to say, "I have done this because so and so did evil to me." One should not return evil for evil. For everyone will be judged for his own actions, and not for those of another.

§92. Those who have the responsibility of a young wife, whether they are relations or husbands, should be very careful and not give them an allowance through an unworthy steward who would be apt to worry them, for evil might result.

§93. What a comfort it is to think that the Saviour, omnipotent, merciful and compassionate, sees and knows that He has not given to women a will sufficiently strong, nor principles sufficiently strong, to be able to control and govern themselves in their youth and at other times, as we see that most men do. He very generously then gives them His grace and the guidance of His Holy Spirit, so that many of them have been saved and kept in a state of purity, many in chastity, many in continence, not a few in loyal marriage. Others He has sanctified who will be blessed for ever.

BOOK III. MIDDLE AGE.

§106. It is true that those who have been children and youths should know well how to nurse and instruct their own children, or those of other people if they are in their care. They should know well how to advise, protect, chastise and reprove, and point out the grave perils of youth. And it is true that they realize the value of instruction.

§107. Those who have been children and have passed through youth to middle age, should know if they themselves were well instructed or not, for if they were well brought up they must have profited by it. And if they were not well brought up they will feel the evil effects both in deed and in word. Therefore for all these reasons they should make an effort to bring up their children well, to punish them and reprove them.

§161. Women of middle age should be temperate, and should know how to look after their children and nurse them. They should lead a simple life without great expenses in order to help their husband and their children. They should try and arrange marriages for their daughters, if they have any. They should know how to entertain their relations and friends and be kind towards their poor relations, for before everything else they should give alms out of their means for those who merit it.

BOOK IV. OLD AGE.

- §182. Old women should spend their time in fasting, in prayer, in penance, and in good works. . . . They should set a good example to the young women.
- §183. They should take care of their possessions, and look after their children if they have any, and should try to arrange marriages for them, and afford other advantages. Those who live in this way have a happy death and come to a good end.
- §184. But avoid others who have lived in sin, and who are not willing to admit that they are old, but wish always to enjoy the pleasures of love, who paint themselves and wear false hair.
- §187. Therefore, pray to GOD that He may grant perseverance to the good and cause the wicked to repent, so that all Christians may come to a good end.

The second is a collection of precepts drawn up by St. Louis for his daughters, Blanche and Isabelle. They were written whilst he was in the East.

The following quotation from MS. Français, p. 35, shows that St. Louis cared deeply for the welfare of his family.

II.

Although invested with the government of a great kingdom, he still gave personal attention to the education of his children, bringing them up in a saintly and Christian life as the law of charity enjoins, and by his teaching and example making them to love GOD, disdain the world and know themselves. They were brought up under the eye of the Queen, their mother, and when they were old enough he made them learn the Office of the Virgin, and hear mass every day. . . . He made them always accompany him to Vespers, which were sung in the church after supper. They went in with him to his room, where, after having made them sit round about him, he instructed them in their duty, and then sent them to bed. He made them observe good and bad actions of princes. . . . He even went to see them in their rooms to inquire if they were making progress, and give them moral precepts. . . . He kept away from them comedies, love songs, and even music.

III.

The Precepts of St. Louis to his daughter Isabelle.

(Collection des Historiens de France XX.)

1. I have thought good to make you some precepts written by mine own hand.
2. Dear daughter, I enjoin upon you to love our Saviour with all your heart and with all your strength.
3. If you love Him, the gain will be yours. . . .
4. You should love Him without limit, for He loved you first.
5. Consider earnestly in your heart how you are best able to please Him, and rather than commit mortal sin allow your limbs to be mutilated and your life to be taken away.

6. Accustom yourself to confess often. Your confessor should be a man of saintly life. . . .
 7. Take pleasure in listening to Divine service, and when you are in church guard against wandering thoughts and against speaking vain words.
 8. Take pleasure in listening when one speaks to you of our Saviour, either in sermons or in familiar conversation. . . .
 9. If you have any affliction, either illness or any other thing which cannot be remedied by advice, suffer the same patiently, giving thanks to your Saviour, reflecting that it is for your good. And you should consider that you have deserved it, and more, if He so willed it, because you have loved and served Him too little, and have done things against His will.
 10. If you are made happy by some good fortune, whether it be health of body or some other thing, thank your Saviour humbly for it.
 11. If you have some trouble, tell it to your confessor, or to some other person whom you know to be loyal and capable of guarding well your secret, to the end that you may be better able to bear it.
 12. Have compassion upon all people that you hear to be in distress, whether it be of the heart or of the body. . . .
 13. Love all good people. . . .
 14. Take care, as much as you are able, that the women and other servants who come into your intimate life are of good and holy character.
 15. Humbly obey your husband and your mother. . . .
 16. Earnestly endeavour to be so perfect that those who hear you spoken of and who see you may have a good example in you. Do not have large stores of clothes or of jewels. Give away what you have in superfluity. Do not spend too much time or too much thought upon your dress.
 17. Have a resolute mind, and never depart from it. Do everything in simplicity and for the love of GOD. And take this well to heart: that although you might never either be rewarded for well-doing or punished for evil, yet you should take care to do nothing that would displease our LORD, and should strive to do those things which would please Him.
 18. Be ready to ask for the prayers of good people.
 19. If it happens that I depart from this life before you, I beg of you to have masses, devotions, and other good works offered for the salvation of my soul.
 20. I enjoin you that no person sees this writing without my leave, unless it be your brother.
 21. Dear daughter, may our Saviour GOD make you good in every respect, even more than I desire, and more even than I know how to desire.
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IV.

Precepts of St. Louis to his daughter Blanche.

(Collection des Historiens de France XXIII.)

He who wishes to further his knowledge of his Creator must first of all direct all his energies to knowing his own life, for the more one knows of his own life, the nearer does he approach to a knowledge of his Creator. For this reason it is necessary for everyone to turn his thoughts often to himself, to collect his mind and detach his thoughts from outward things, and to meditate in the privacy of his own heart.

Secondly, he must diligently examine his life and search his heart to see what thoughts, what affections, and what desires he has entertained during the day; whether he has taken pleasure in anything contrary to the will of GOD, whether he has suffered to take possession of him pride, felony, jealousy, lust, gluttony, or sloth.

Sloth is a vice which prevents the soul from well-doing. . . . It is necessary to meditate concerning your life, your acts, your words, your looks, your goings, all your works and thoughts, the blessings which GOD has given you and gives you every day; consider how you should love Him, how you should serve Him and keep His commandments.

My daughter, when you rise in the morning and the clock of GOD (the sun) wakens you, turn the eyes of your heart towards GOD, Who made you, entrust your cares to Him and beg Him to preserve you from sin. . . .

When you are going to church and coming from church to say your hours and your devotions, turn your heart towards GOD and let no vain thought enter into your mind.

When you sit down at table for meals do not consider only how you may please your palate, but how you may sustain your body.

When you rise from the table you should render thanks to GOD, and pray for those from whom you receive benefits.

If you are in company where it is fitting that you should enter into conversation, speak reasonably; before the words leave your mouth you should draw twice into the unfathomable depths of reason.

If you are speaking to men, take care that you do not say anything that might be ill-construed; . . . but let your conversation prove that you are a wise and well-bred woman.

When, after evening prayers, you are about to retire to bed, take counsel with yourself in your own heart secretly, and consider if you have misspent the day either in thought or look, in hearing or in evil-speaking. . . . Ask GOD for mercy and purge your conscience.

Speak in such a fashion that your conversation may be filled with the law of charity, and your words may not bring suffering to anyone.

Have no friendship with a man if you do not know that the love of GOD is in him, and that he is of good life.

Avoid too great familiarity with any person, but be frank of heart and of mind.

Be humble of heart and modest in your attire, and pray for the world.

If you are called upon to reply to anyone, do so simply and with few words.

Love the poor, for in this way you are loving GOD; love all good people if you would share in their goodness.

Be simple, gracious, of few words and courteous; remember always that GOD sees you.

Love the Holy Church and delight in going there; when you are in church do not speak, but turn your thoughts to GOD, Who is present.

Think often of death and how the body will turn to dust and fail, and how you must die and be brought to judgment and pay the penalty. This should make us hate sin and incite us to well-doing.

Preserve your heart clean from all filthiness and from every evil thought; resist the temptations of the enemy.

Be kind and charitable; do not foster anger in your heart, but pardon willingly. . . .

Be constant in prayer, for prayer is a refuge in all tribulation. . . .

Be humble, and consider yourself always the worst woman in whatever company you are. Rejoice with your neighbour in his prosperity, and lament with him in his sorrow; have pity on the poor and GOD will have pity on you.

. . . Do not think to be happy if you do not hear mass.

Be truthful and do not swear, nor lie, nor perjure yourself; let truth be always in your mouth, and let your words be deliberate and few.

Let your words injure no one, and do not be eager to avenge yourself, but be peaceful to all manner of men.

Have in your heart the remembrance of the sufferings of our blessed, sweet friend JESUS; for this is a thing which can greatly move a heart to love GOD better and to keep itself from sin.

My daughter, give ear to these precepts which I am sending you, and order your life according to them; thus you will become a good and devout woman.

Do not show them to anyone, but read them in private; mirror yourself in them and order your life thereby, for that is the path of approach to GOD. Then you will be able to say "So be it," and praise our Saviour JESUS CHRIST.

"Le Chatiement des Dames" is a didactic poem, written in the thirteenth century by Robert de Blois. Nothing is known of the author. Such poems are fairly numerous during this period, and are similar in treatment. A rather free translation of the text follows.

V.

Le Chatiement des Dames.

(P. Meyer, Romania XVI, 334.)

- 4 Robert de Blois desires by means of this book to offer instruction to ladies concerning their behaviour.

They should be discreet in their coming and going, in their silence and in their speech; it is a sign of ill-breeding when a woman talks too much, and, furthermore, she incurs blame for her folly. Therefore every woman should take heed lest she err in this respect. On the other hand, she must not be too silent, for the woman who does not know how to converse agreeably is less highly esteemed. By her courteous manner she should be a source of pleasure and a welcome companion to those who meet her, whether they be knights or servants. . . .

65 When going to church or elsewhere do not trot or run, but walk straight on and at a moderate pace. Do not get too far ahead of your companion, do not loiter, nor stop here and there; go straight on. Greet in a friendly manner all whom you meet; this will cost you no trouble; he who greets voluntarily is greatly commended, while he who is chary of doing so is generally a miser. Do not despise the poor, but speak to them graciously; he who speaks kindly to the poor and is humble, though he give no alms, is acceptable to our Saviour.

91 A woman must not permit any man, excepting her husband, to touch her or to indulge in familiarities such as caresses or kisses on the mouth, for these awaken passion which neither marriage, nor position, nor the sense of duty can restrain. . . .

140 A woman should be careful how she looks at a man, for the eyes betray the heart. Do not boast if a man offers you his heart, for if later you grow to love him you will regret having spoken about it.

180 It is not fitting for a woman to be immodestly dressed nor to expose too much of her body. A white neck and throat, a fair face and white hands, show that her whole body is white.

210 Do not accept jewellery from anyone. No woman who aspires to honour would wish to receive it. Such gifts are dearly bought. If, however, a relation wishes to give you a present of a pretty purse, a beautiful knife, a satchel, a ring, or a brooch, do not refuse it unless it is given secretly. Gifts of value or gifts given in privacy should not be accepted.

249 Above all things, I would warn you against quarrelling. A woman who quarrels is neither good nor is she a lady; moreover, she loses her beauty when she is angry and is no longer able to control herself. Do not chide others for the faults which you yourself possess. If another rebukes you, suffer it quietly, for this is pleasing to God.

295 Again, I would warn you against excess in eating or drinking. In a woman there is nothing more disgraceful than gluttony or drunkenness. A woman who drinks can never possess courtesy, beauty, or wisdom, nor does she recognize right and wrong. Shame upon her, she should not be allowed to live! . . .

337 The woman who keeps her head covered and does not bow when a nobleman greets her is said to be ill-bred, or gives the impression that she wants to conceal some deformity. . . . She should be veiled when she is going to church or when walking along the streets. At the entrance to the church she should

unveil, also in the presence of gentlefolk. If her face is not beautiful, she will not be blamed for putting her hand before her mouth when she laughs.

367 She who is pale should take a meal in the morning. Good wines are good for pale folk, and those who eat and drink well should have a good colour. If your breath is bad, you should try and hold it when you enter the church. You should often eat anise, fennel, or cumin in the morning. If you are speaking to anyone, you should be careful that your breath does not reach his face. . . .

390 Be careful that your behaviour is discreet in church, for you are seen by many people who notice both good and evil. . . . You should kneel devoutly and make your prayers from the heart. You should avoid much laughing or talking. The church is the house of prayer: you should not speak except to GOD. Do not let your eyes wander idly here and there.

410 You should rise when the Gospel is read and cross yourself devoutly at the beginning and at the end. If you are not in good health you may read your psalter sitting down—if you *can* read. When mass is chanted and the benediction said, allow the crowd to depart, then bow and curtsy to those to whom honour is due.

447 If you have a good voice sing loudly. To sing well at the proper time and in the proper place is a very pleasant thing, but remember that to sing too much is disagreeable. Everything should be in moderation, as wise men have told us. If you are in the company of people of high rank and are asked to sing, do not refuse. For your own pleasure, when you are alone, singing is not forbidden.

463 Be careful about the care of your hands. Cut the nails often; do not allow them to be longer than the tips of the fingers, or dirt will collect in them. It is fitting that a women keep herself clean and tidy; an agreeable manner and a neat appearance are of more value than faded beauty.

471 When you pass before the houses of others you should not stop and look in; it is discourteous. One often does things privately in one's own house which one does not wish others to see. When you are going into a house, cough at the entrance, so that your approach may be known; otherwise people may think that you are trying to spy upon them.

491 Ladies should pay great attention to their behaviour at meals. It is a matter of importance that one should do the correct thing. At table you should not talk or laugh too much. If you are eating with others, pass the best bits to them. Do not put into your mouth morsels so big that they might choke you, nor so hot that they might burn you. Before you drink wipe your mouth, so that the wine shall not be greasy and the taste spoiled.

520 Be careful when you drink that you do not wipe your eyes or your nose with your napkin, for that is not seemly. Be careful not to make spots, and do not let your hands get sticky. Do not make too free with other people's food; that is not polite. If you do not care for any dish, refuse it.

533 Finally, I would warn you against the vice of lying. The woman who makes a habit of lying is hated by GOD and man.

559 Some ladies, when one speaks of love to them, are so amazed that they do not know what to reply, and in their simplicity do not say either "Yes" or "No." Accordingly the man thinks he has found an easy prey. This is the result of their foolish behaviour. Do they not know that love which is easily gained is not so highly prized as love which is only obtained after difficulty and toil? Therefore you should not say "Yes" too soon, for you will not be so much thought of. . . .

(Here follows a model dialogue between a suitor and a lady.)

604 "Lady, night and day your beauty makes me languish. I can neither rest nor sleep; I can neither eat nor drink; my joy has changed into complaints, into sighs and tears. Have pity upon my sadness, which has made me so pale, so thin and weak. If I do not find solace in you I do not know how I shall live. When I see you I am filled with joy; it is as if I looked upon the face of GOD."

(To which the lady should make reply as follows :)

678 "Dear sir, certainly for my part I do not wish you any ill. If you are really suffering on my behalf, it is foolish of you. I wish you well and I wish you joy. As much as it is lawful for me to love, I love you, as I love all good men. Him I love to whom I have plighted my troth—that is, my husband—and I
705 shall never prove false to the love which GOD has enjoined. . . . I do not know what makes you say such things to me; you probably think me simple and foolish. My beauty is not so great as to excite such attention, and if it were, I should guard myself more carefully and would hate a beauty which attracted such extravagant speeches. I can only suppose that you are mocking me, but I am willing to pardon you if you promise not to speak in this manner again."

A reply such as this will win for you honour and respect, and if the man loves you as much as he says, he will not be daunted by the obstacles which you place in his path.

(The rest of the book, lines 750-1099, is a discourse on love.)

AN INVESTIGATION OF LONDON CHILDREN'S IDEAS AS TO HOW THEY CAN HELP IN TIME OF WAR.

By C. W. KIMMINS, M.A., D.Sc.

IN the papers I have published on the interests of children in the war and in air raids, I have dealt with the essays of all the children in the schools examined, and have compared the interests of boys and girls for different ages.

It was clear from these investigations that special interests are to be noted from year to year in the developing child, and that striking

differences are to be found in the order of appearance of such interests in boys as compared with those of girls.

In dealing with the question of how children can help in time of war, I have examined 1,340 papers written by boys and girls of about eleven years of age. The children were all educated in mixed schools, and therefore came under the influence of male and female teachers, the latter, however, predominating in consequence of war conditions. When all allowance is made for the common material in the essays due to the teachers' influence, and also the difference of interests created by the teaching of certain special subjects to girls whilst others are being taught to the boys, it is quite clear that there are fundamental differences in the attitude of boys and girls of this age which are absolutely independent of school conditions.

The excellent spirit of the children, as evidenced by their desire to do anything in their power to render assistance in time of war, even at great personal inconvenience, is a very pleasing feature of the essays, and the extraordinary ingenuity of some children in devising methods of economizing shows that the matter has been taken up with great enthusiasm, and that much intelligent thought has been bestowed upon it.

Comforts for Soldiers.

Knitting and Sewing.

Naturally the efforts made in the schools in knitting and sewing a great variety of garments and material for the comfort of the soldiers receive a large amount of attention, and are referred to in detail by boys and girls. The fact of the children being in mixed schools, and the activities of the girls in this direction being ever before the boys, account for the much larger number of references to girls' work by boys than to those of boys' work by the girls. The list of things girls propose to make for soldiers are generally useful and sensible. An exception is the suggestion that "girls can make handkerchiefs with lace round the edges and flowers in the corners for the soldiers." Many suggestions are made throughout the papers that the boys should provide the money for the wool whilst the girls should do the knitting.

The average boy, being unable to knit or sew, is loud in praise of the girls' efforts; e.g., one boy says "Great help has been rendered in the war by the industrious British girlhood, who has made comforts for the troops." On the other hand, the boy may occasionally be severe; e.g., "I saw some knitted things that Lady Jellicoe had sent to be re-knitted. They made me shudder." Girls are very severe in their references to the boys' inability to knit, and think that only the cleverest boys could possibly do it; e.g., "Boys who are a little more forward than the others might help with the knitting." Another goes so far as to suggest as a division of labour that "As the girls are engaged in knitting, the boys might do their part by praying for the success of our arms."

Throughout the essays the girls are far more critical of boys' work than the boys of that of the girls. This is shown in continual reference to the boys' inability to do useful work, as the following extracts will show. After referring to the great amount of patience required to knit mufflers, a girl says: "If only boys had patience they could do the same as the girls." Then, again: "Boys are not so useful as girls, because they are not so light-handed"; and "Boys

cannot sew, but they can inform their sisters that their clothes are torn, and they will see to it." Others are less severe, as for example: "Boys could be very useful, if only they would try." And yet again: "Although they cannot knit they can join the Boy Scouts."

Boys' Handwork.

It might have been thought that the boys' other forms of handwork might be quoted as an asset on their side, but the references to this by both boys and girls are disappointing and unworthy of record. No good suggestions are made for the boys' handwork during the elementary school period being of any real value in rendering assistance in time of war, whereas quite young girls can play a useful part. References are, of course, made to the value of the after school activities of the boys in connexion with munition works.

Children's Ideas as to Needs of Soldiers.

There is considerable variety in the views of the children as to the things which should be purchased with their savings, and which they consider would be most serviceable to the soldiers in the trenches. Among these, the following are suggested by the boys:—Cigarettes, tobacco, pipes, shaving sets, cocoanut ice, musical instruments not wanted at home, especially mouth organs, pen-wipers, books and games, syringes, hot water bottles, vaseline, boracic ointment, tooth-brushes, bars of scented soap, magazines, and patchwork quilts. One boy suggests that girls should make little bags filled with lavender, which the soldiers can hang round their necks with tape. "This would keep off the horrid smell of the trenches."

Among the things suggested by the girls are all kinds of warm woollen things and articles of attire, cigarettes, chocolates, air pillows, condensed milk, gramophone records, games, book, plum puddings for Christmas (with 3d. and 6d. pieces in them to amuse the soldiers), toffee, Oxo, blankets, fruit, acid drops, paper, pencils, pencil sharpeners, pipe lights, and cod liver oil.

Girls appear to be much keener than the boys on sending cigarettes and chocolates to the soldiers, and whereas many girls refer to sending Christmas puddings, not a single boy makes any reference to it.

The War Loan.

The War Loan, which one boy says "broke out in 1915," although mentioned by a large number of girls, evidently does not appeal to them so strongly as more direct methods of helping in the war. They like something concrete, and prefer their money to be given to some specific purpose. One goes so far as to raise the objection to the War Loan that "if a bomb fell on the Bank of England, all our savings would be converted into ashes." Red Cross funds, money for delicacies, or immediate comforts for the soldiers, wounded or unwounded, appeal to them far more than the War Loan. The boys, on the other hand, delight in explaining to the minutest detail how the various stages are carried out in connexion with investment in the War Loan, and they point out the monetary advantage in lending as compared with giving money. Many of them have most exaggerated views of the ultimate results of their efforts in days to come; e.g., one boy says: "Put by a penny a week, and then when you grow up you can live happily"; and another says gradiloquently: "And when people say, 'What did you do in the great war?'"

I shall answer proudly, 'I lent my spare coppers to my country, and that is why I am better off than those who lent nothing.'” A strong advocate of the War Loan says: “Every 5s. lent to the Government kills a German.” A curious point is to be noticed here, that whereas girls continually refer to the amount they have saved, the boys make no reference to it. Both boys and girls have most exaggerated views of the purchasing power of their savings in regard to munitions and food for the soldiers. One boy says parenthetically: “We must always remember that the British soldier has a very big appetite.”

War Economies.

Picture Palaces and Sweets.

To boys and girls the chief items of retrenchment are money spent on picture palaces and sweets. In the majority of the papers these are referred to as the extravagances which will have to be most severely dealt with. One boy says: “The Germans would be frightened if they heard that children were not going to any more picture palaces, but that all the money saved was to be spent on munitions.” Similarly a girl says: “Let us help to crush the Germans by not going to picture palaces. Instead of going there go on the common, and the bracing air will do you good, but the picture palace would harm your eyes.” Another says: “If you must go to places of amusement, go to Red Cross concerts.”

The boys dislike total abolition of their weaknesses, and the boy who said “Only buy sweets when you feel that you simply cannot do without them” is typical. On the other hand, the girl is in favour of total abolition. In support of this one girl says: “Give up such luxuries as perfumes, sweets, and cakes. Perfumes do you no good, and sweets and cakes may cause indigestion.” Another girl says: “Don't buy toffee and stickjaw. They do more harm than good.”

One boy goes so far as to say that “children who spend money on pleasures are not loyal to their country.” Referring to the ill effects of picture palaces and sweets, a child writes: “We must not get ill or the doctor will have to look after us when he ought to be looking after the Tommies.”

Economies in Food and Drink.

In this connexion there is a very striking difference between the boy and the girl. The boy feels that under normal conditions he eats too much. The girl has no such feeling, and thus there is no necessity for reform in this direction. They are agreed that in no circumstances should food be wasted. This is well shown by quotations from the essays. The boys say:—

- (1) “We mustn't eat so much.”
- (2) “We must eat less meat so that the soldiers may have more. Save by eating more vegetables.”
- (3) “Instead of eating because you like eating, you should eat just as much as is good for you.”
- (4) “Eat margarine instead of butter, and give up jam and cakes. Don't grumble at your food.”
- (5) “Don't give things to the cat, but save them for yourself”; and
- (6) “Don't throw away your crusts, but save them for a bread-and-butter pudding, which is a very tasty dish.”

On the other hand the girls say :—

- (1) "I do not believe in not eating as much as we generally do, but we mustn't waste food."
- (2) "Have a good meal when you are about it, and then you can wait a long time."
- (3) "If you make a silly mistake in arithmetic or any other lesson, when you get home tell your mother not to let you have any jam or butter for tea, but save the money for the War Loan."
- (4) "Girls can help by encouraging their parents not to take intoxicating beverages;" and
- (5) "Don't give bones to the dog, but stew them; they make lovely gravy."

Economy in Clothes.

Here, again, the boy is conscious of wrong, especially as far as boots are concerned, and economy in this direction will mean constant restraint, as will be clear from the following extracts :—

- (1) "Boys must stop climbing up places, and save their clothes."
- (2) "Do not kick stones about, because it wears your boots out much more than not kicking stones about."
- (3) "If we skate or play football it will wear out our boots."
- (4) "We can economize by not scraping our boots as we walk along."
- (5) "We must not buy new clothes because our old garments might get the moth in them"; and
- (6) "We must not wear out our boots by making sparks on the kerbstone."

With the girls it is different. Economy in clothes, though it may be a serious matter, does not mean such an interference with the joy of life as in the case of the boy. The following quotations are typical :—

- (1) "Do not run about heavily and clumsily, and thus wear out your boots."
- (2) "If you buy a pair of new boots, the man who makes them has to keep a soldier waiting for his, so that you are a traitor to your country."
- (3) "Girls can save in clothing by changing into old things on going home from school."
- (4) "Don't be ashamed to go to school with a darn or a patch in your clothes"; and
- (5) "If children fidget it wears out their clothes."

Minor Economies.

It is evident that boys spend much money in buying cheap comic papers, and that they regard this as unnecessary, and therefore include it in their list of expenditure reforms. No reference is made to "comics" in the girls' papers. Expenditure on fireworks, which must also be curtailed, is mentioned only in the boys' papers. There it is mentioned very often. Among the less frequently-mentioned economies are the following by the boys :—

- (1) "No more toys, especially those made in Germany."
- (2) "No waste in paper, coal, gas, or firewood."

- (3) "Don't ride when you can walk."
- (4) "Instead of paying to see football matches, see your own school play for nothing."
- (5) "Do without birthday presents, and go to bed in the dark, and save the light"; and
- (6) "Don't use so much soap in washing."

Among the minor economies of the girls the following may be mentioned:—

- (1) "Save paper and economize space in writing and drawing books. Use every inch."
- (2) "When drawing, use very little crayon."
- (3) "Walk instead of using 'buses or trams'; and
- (4) "Don't cut string but untie the knots."

It is to be noticed that those of the girls are principally school economies.

Helping Mother.

Many of the essays deal effectively with the manner of giving help in the home to comfort the mother in connexion with the worries entailed by the war, and also for the purpose of setting her free to carry on her work of making things for soldiers. The girls look upon this as their main work outside school, and are much interested. One girl makes a very good case for her statement that "the child who minds the baby helps to end the war." The boys also assist, but it is evident that they find the work very irksome, especially in the direction of looking after the baby. As one boy pathetically says, "Babies want a lot of looking after, especially new-born babies." The direction in which they render the greatest service is in always being cheerful, and trying to induce the mother to look on the bright side of things, and to cease the eternal questioning as a war economy. They can also help by being calm during Zeppelin raids. This is well shown in extracts from the papers. The boys write:—

- (1) "We can help mother and save the servant's wages." "We can cheer her up."
- (2) "We must keep a stout heart during air raids, and not make a noise in the afternoon so that mother may have a good sleep."
- (3) "Always be good, and never have to be told anything twice."
- (4) "Help mother, and set her free to make things for soldiers."

The girls say:—

- (1) "Girls must play less during the war, and help their parents more." "They must cheer up their mothers."
- (2) "Girls must not go out in the evenings, but stay at home and help comfort and amuse mother, so the time may pass more quickly till the men come home from the war."
- (3) "I wish I was a man, but that was not to be. We boys and girls were made for other reasons."
- (4) "We must not bother our parents with incessant questions during the war. We can help by putting up with irritating things."
- (5) "Always be merry and bright, and cheer up mother."

The Virtue of Obedience.

At the age of eleven, boys and girls are as far apart as the poles in their attitude to obedience. Throughout the papers the girls insist on the value of obedience, not only in making the affairs of life work without friction, but also in producing that happiness and feeling of satisfaction which only obedience can bring. "If you are good you will be happy" is the keynote of many of the essays. Here are some quotations from the papers:—

- (1) "Obedience is the great thing. If everyone did as he was told, this world would be a good place to live in."
- (2) "Be obedient and don't argue."
- (3) "Be obedient, and grow up to be noble and wise women."
- (4) "Girls must behave when teacher is not looking."

The boy's attitude is absolutely different. He regards obedience as a necessity, and adopts it as a war measure, but he never refers to any resulting peace of mind as a consequence. Rigid obedience cuts across the boy's most cherished recreations and excitements. The boy who says "during the war we must obey parents, teachers, and policemen," is a normal boy, and expresses the opinions of his fellows. Quite logically, he discusses the reasons for this war measure. The affairs of the home are in such an abnormal condition that his mother is overworked and worried. His love for her purifies his resolve to give all the help he can in the home, and this is impossible without obedience. In the mixed school the replacement of men by new women teachers so that the men may join the Forces gives the boy an opportunity of having an exceptionally good time. But there are many references in the essays to his determination to play the game properly, and make it "easy for the new lady teacher to take the place of the man who has gone to fight." In his attitude towards the policeman, he fully realizes that out of school he is regarded as a nuisance, and that obedience to regulations would result in "more policemen being set free to fight for the King." He therefore resolves, e.g., "Not to get in a soldier's way because a soldier has always something special to do," and he adds curiously, "I must not say bad things about the Cabinet." The girls make constant reference to boys' disobedience, as for example: "Boys must refrain from squeaking horns on standing motor-cars"; and again: "Boys can help their country by not putting the street lamps out." In fact, the majority of the girls' many references to boys' short-comings are connected with the unpardonable sin of disobedience.

Helping the Wounded.

The girls write much on the various ways in which help may be given to wounded soldiers. They evidently delight in doing kindly acts, and are happy when helping to provide or take part in entertainments for the wounded or in Red Cross concerts. The boy approves, but does not enter into the spirit of the thing to the same extent as the girl. One boy says: "Children can look after wounded soldiers, and take them into the parks to listen to the feathered songsters"; and again: "We should visit wounded soldiers because they are tired of seeing so many grown-up people out at the Front." He does these things willingly, but his heart is not in it. It is quite different with the girl.

Boy Scouts and Girl Guides.

The boy's greatest interest in helping in time of war is in playing the part of the boy scout. References are continually made to the wonderful work carried on by the scouts, and the part that they play in the military organization is painted in glowing colours, and is occasionally grossly exaggerated. Their activities appear to vary from "watching a reservoir while the special constable has a rest," to the discovery and tracking down of alien spies, and giving important information to the War Office. The boy frequently refers to the desirability of girls becoming girl guides, but very few references are made by the girls themselves to this movement.

Raising Money for the War.

The boys see in the shortage of labour in the shops an opportunity of earning money easily by out of school work, and it is feared that they are taking too great advantage of it. The boys constantly discuss methods of raising money, as, e.g., "Boys should fish for bloaters, and reduce household expenses"; or, again, "Money boxes should be tied to tame pets so that they can collect money for wounded soldiers." The boys are anxious to go about collecting money for the soldiers, and selling pretty things made by clever girls. No references, however, are made to selling anything they have made themselves. The attitude appears to be, "We will raise money, and the girls shall do the other work." The buying of wool for girls to make woollen garments for soldiers is a case in point.

Education of the Future Citizen.

Very interesting references are made in the papers to the great importance of English boys and girls working hard in school in order to become better educated than the German children. The following extracts speak for themselves:—

- (1) "We must work hard at school, and beat the enemy at arithmetic and other things."
- (2) "If we work hard at school and become clever, a nation would think twice before invading England."
- (3) "We are the rising generation. England wants boys and girls to be like Drake and Florence Nightingale."
- (4) "We are the citizens of the future, and shall have to select the Members of Parliament. We must work hard when teacher is out of the room."
- (5) "We children will have to put this country right after the war, so we must work hard and become well educated."

THE USE OF ENGLISH IN MODERN LANGUAGE TEACHING.

BY IDA B. SAXBY.

THE oral method of teaching modern languages is still comparatively speaking in its infancy. Twenty years ago it was only being attempted in the most "advanced" schools, and even to-day it has not been adopted by all teachers.

None the less we are already beginning to feel the backward swing of the pendulum. In the first wave of enthusiasm there was a tendency

to throw overboard all teaching of grammar and to eliminate the use of English entirely ; the child was to learn foreign languages in the same way as it learnt its native tongue, that is by using it. But to-day few really experienced teachers still consider this practicable. Most of us have, on the contrary, come to the conclusion that the purely conversational method of teaching a modern language is only suited to two classes of pupils, namely, (1) children under ten and (2) adults who merely want to "pick up" enough to be able to make themselves understood abroad but have no desire to obtain a real grasp of the language.

The ordinary school course aims at more than this, and it has therefore been found necessary to evolve a method which, though largely oral, yet lends itself to instruction in the essentials of grammar. This in turn has led to the introduction of a certain amount of English into the lessons, for it has usually been found to be more satisfactory to let pupils in elementary classes summarize grammar rules in their native tongue. And this is not all. English is also reappearing in other parts of the language lesson ; but almost always apologetically, as though the teacher felt that it was a sign of weakness on his part to have recourse to it in his teaching.

When asked why he is so anxious to avoid the use of English altogether (1) he may tell us that it is essential to do so if the children are to be taught to *think* in French, or (2) he may remind us that most of us think in images and expect us to infer from this that we are putting an unnecessary difficulty in the way of our pupils, when we make them learn a foreign word from the English equivalent instead of letting them learn it directly from the picture.

In the following pages I propose to consider each of these objections in turn.

(1) I suppose every modern language teacher would agree that it is essential to teach children to think in the language they are being taught. This then we may take for granted. The question to be considered is how far this is likely to be achieved by our present methods ; for it has to be remembered that there is nothing to prevent the children from thinking in English even though we insist on their speaking in, e.g., French. Consider, for instance, what happens in a French reading lesson when a pupil comes across a word he does not know. In an advanced class the matter is comparatively simple. We can then conduct the entire lesson in French, and explain such a word by means of other words with which he is already familiar. But the teacher of an elementary class has no such tool at his disposal. If he is really to avoid the use of English he must have recourse to pictures or to dumb show. The value of pictures will form the main subject of this paper, and may therefore be left for the moment. Here it is only proposed to touch upon the effect of dumb show.

Those who defend its use appear to assume that dumb show conveys meaning directly and easily. But this is not true in practice. Anyone who has watched a class of children aged thirteen or fourteen must have been struck by the fact that dumb show has to be used with exceptional skill if the lesson is not to degenerate into a guessing game, and that the children always seem to turn to the English equivalent when there is any difficulty in interpreting the action or gesture.

A teacher can, of course, prevent them from actually saying the English word ; but if he does that, then he also deprives himself of his only ready means of judging whether they have or have not understood his action correctly.

In fact dumb show does not achieve its purpose in any but the simplest cases, because we have no conventional language of signs. It is unsatisfactory for our present purpose (a) because we are continually in danger of misinterpreting each other if we try to use it as a means of communication, and (b) because the observer tends to think of the action in words whenever he is not sure what meaning it is intended to convey. It is therefore very unlikely that the "atmosphere" of the French reading lesson would really suffer more if occasional unknown words were simply translated into English instead of being explained by means of dumb show.

(2) The assumption that underlies the second objection will be most readily understood by means of an illustration. Suppose therefore that we are teaching the meaning of the word "*maison*." The argument in this case would be that the association—

house = *maison* involves the mental process house =  = *maison*,

and that the first of these steps is eliminated when we teach the meaning of the French word by pointing to a picture of a house. It does not appear to matter what kind of house was represented on the picture. The only possible inference is, therefore, that all the usual varieties of houses tend to become associated directly with the sum total of all that "house" means to the individual, whereas the word "house" does not tend to become so associated—an unlikely assumption on the face of it, and one completely disproved by the teaching of modern experimental psychology.

It has of late years been shown again and again that meaning is something much more complex than what is actually given in the image, and that imagery is by no means essential to thought. The reader to whom these ideas are new is invited to judge for himself how far his image of a house really conveys all that house means to him, and to watch himself to see whether his ordinary trains of thought are always supplemented by *helpful* imagery. But besides this it has been established that such imagery as is used varies greatly from individual to individual. At the thought of house one sees his own home, another a whole set of houses, another a mere outline such as that given above, &c., &c. No two persons would be found to have the same imagery for all the common objects of everyday life.

If, therefore, we really want to save our pupils the extra step of translation, there is only one method by which we can achieve our purpose. We shall have to find out the imagery-vocabulary of each and teach them individually, each in terms of his own vocabulary!

The reason usually given for teaching individual words by means of pictures or dumb show is therefore psychologically unsound; but the method has been adopted so freely and defended so often that it struck me there might perhaps be another reason for its popularity. Though there can be no doubt that picture and word are equally meaningless until they have gone through a process of interpretation, and that children of eleven interpret one as readily as the other so long as we confine ourselves to words in everyday use, it is yet possible that children find it easier to derive the association "foreign word-meaning" from the association "foreign word-picture-meaning" than from the association "foreign word-English-word-meaning."

Theoretically there appears to be no reason why one method should be more successful than the other, once the novelty of learning

from pictures has worn off. So far as I can see the question can only be settled by means of experiments devised for that purpose. This I therefore attempted to do in an investigation which I will now proceed to describe.

The experiment in question was carried out in the Girls' Departments of three of the Cardiff Elementary Schools, where the head mistresses kindly allowed me to use Standards VI and VII for my purpose. We chose girls who had learnt Welsh by the oral method for at least three years, and who were therefore quite accustomed to the process of learning new words from pictures.

The test material consisted of the nine words *bateau*, *poupée*, *cochon*, *cheval*, *brebis*, *oiseau*, *fourchette*, *soulier*, and *chapeau*, which were always presented in the same order in the practice series. School A learnt these words from the corresponding English words; School B from pictures. It will be convenient to omit School C for the present. The method of learning was as follows:—Series of practice cards were prepared. For School A the nine words were written on separate cards underneath the corresponding English words; for School B they were written similarly underneath a picture of the object in question. The difficulties of the French spelling would have introduced undesirable complications. The words were therefore presented to the girls in a sort of phonetic script, e.g., wazow for *oiseau*.

This test was given to thirty girls in each school, each girl being tested individually.

The procedure adopted in the test was as follows:—The nine cards were put one on top of the other in the required order and covered with a blank card. At the time of the test these cards were turned over one by one, the French word being pronounced by the experimenter and repeated by the subject. As far as possible each card was exposed for five seconds. After going through the whole series once, the amount learnt was tested by means of another set of cards. These were identical with the first set, except that the French word was omitted and had to be supplied by the subject.

This process was repeated four times. Then the girls were given a large sheet of paper with the nine French words arranged in three rows of three and with a space underneath each. In School A the tasks were to put under the right French word (1) cards with the English words on them and (2) a set of pictures differing from the practice pictures used in School B. Each of these tests was given twice, care being taken to give the cards in a different order each time. In School B the tasks were similar, except that (2) was given before (1). Thus each girl in School A had the French word ten times with the English equivalent and twice with the test picture, whereas each girl in School B had it eight times with the practice picture, twice with the test picture, and twice with the English equivalent. They were timed throughout with the aid of a fifth-of-a-second stop watch.

A further individual test was given after an interval of a week.

Since one of the objects of the experiment was to compare the rate of learning in the two schools, it was essential to have two groups which might be expected to be on the average equal in ability to learn foreign words. Such ability seemed to me to depend (1) on rote memory and (2) on power to invent artificial aids. I therefore gave a final class test in each school. This test was given ten days after the second of the

individual tests. It comprised two tasks, (1) learning two sets of nine nonsense syllables by heart and (2) inventing as many artificial aids as possible for remembering the nine French words. The nonsense syllables were shown once only one at a time, the period of exposure being roughly five seconds for each syllable. The French words were written on the blackboard with their English equivalents, and a practical illustration was given to show the kind of thing that was wanted. Every girl was allowed as much time as she wanted.

This class test was given to all the girls who had taken the individual tests. The results obtained from it thus made it possible to select from them two groups (one from each school) such as to be equal on the average in (1) and (2). Each of these groups consisted of twenty-six girls. Needless to say none of these girls had learnt any French previous to the experiment.

The next thing to do was to examine the work in the first individual test. The two groups were compared (*a*) for the rate of learning the words in the practice series, (*b*) for the time taken to put the English words and the pictures under the right French word in the big sheet of paper, (*c*) for the number of mistakes made in this task, and (*d*) for what might be considered a measure of efficiency, i.e., number right—time taken. It was, however, impossible to detect any significant difference between the work of the word-taught group and that of the picture-taught group. (The maximum difference was only 1.2 of the standard error of the difference).

Since the girls were all accustomed to learning from pictures, the picture-taught group cannot have experienced more difficulty than the other in adapting itself to my method. It would appear, therefore, that girls aged eleven to thirteen learn single words as readily from their English equivalents as from pictures.

This is, however, the less important part of the problem. If children are to learn to think in French they must learn to associate the French words directly with their meaning, instead of merely associating them with their English or picture equivalents. It remains to be seen whether there is anything to choose between the two methods from this point of view.

It was in order to study this part of the problem that the test was repeated after an interval of a week. Although we had been careful to give the girls no reason to suppose that they would be tested again, most of them had practised the words during the intervening week, so that they were almost word perfect on the second occasion.

I began this time by giving each girl half as much practice as in the first test, and followed this up by ten to fifteen minutes of introspective work. The main thing to be determined was, of course, the extent to which the two groups of children used English before thinking of the French words. Nevertheless since children are so highly suggestible, I thought it wiser not to concentrate their attention on this point, and therefore tried to create the impression that I was mainly interested in their imagery. After a short preliminary practice in visualizing a neighbouring park, hearing a favourite tune, &c., I showed the series of test pictures (i.e., those with which both groups were equally familiar) one by one, explained to them that I wanted them to describe their imagery each time, and then added, "I should also like you to tell me whether you thought of the English word at all, and if so whether it came before, after or with the French word." All the

children took the task very seriously, and most of them seemed to think it was well within their power to do it properly.

The introspections show that the English word did not as a rule function in the same way for the whole series of nine words. It often appeared before the French for some of the words, and either not at all or after the French for others. For the present purpose all that matters is whether the French was or was not thought of first. When the investigation was limited to this point it was found that most of the girls showed a tendency of at least 6 : 3 in one or other of these directions. In what follows 6 : 3 is considered a tendency in one direction, and 7 : 2, &c., a marked tendency, whilst 5 : 4 is rejected as indecisive. As will be seen 5 : 4 occurred very rarely in the course of the experiment.

Unfortunately the word-taught group had apparently practised the words more effectively than the picture-taught group. It was therefore necessary to equalize the groups in this respect by rejecting the best of the former and the worst of the latter. This produced two groups of twenty-three children, equal on the average both in the time they took to put the pictures under the right French words (spelled as before phonetically) and in the number of mistakes they made in the process.

The numerical results obtained from these groups are as follows :— In the word-taught group *twelve* showed a tendency to think of the English before the French, *eleven* to think of it after the French or not at all.

In the picture-taught group *eight* showed a tendency to think of the English before the French, *two* to think of the practice-pictures before the French, *twelve* to think of the English after the French or not at all, whilst one very backward girl seemed quite unable to give introspections.

Evidently the children who had been taught the French words from their English equivalents had acquired just as much power to think in French as those who had been taught from pictures.

It would have been more satisfactory to have asked girls how they practised the words during the week in order to judge how far the picture-taught group really considered the pictures helpful. This I omitted to do, and it will therefore be necessary to obtain it from the introspections of the girls in School C. This group resembled the others in that the girls had all learnt Welsh by the oral method for at least three years. Each girl was again taught individually, the test only differing from that given to the other picture-taught group in that no phonetic script was used on this occasion, so that the girls had to trust entirely to their ear in learning the words.

In this school each girl was asked at the beginning of the second test whether she had practised the words during the week. If so, what method she had adopted. An inquiry of this kind always exposes the investigator to the risk that young subjects will give whatever answer they think most likely to win approval. The writer therefore impressed on the girls that her object was to find out which was the most effective way, so that there could be no question of having used the right or the wrong method. The girls seemed keenly interested in my questions. I think it may at least be assumed that they did their best to give me accurate answers.

The results obtained were as follows:—

Twenty-three had actually practised the words during the week. Of these seven had thought of them with the English, eleven with the practice-pictures, and five sometimes with the one and sometimes with the other.

It will be remembered that all these girls were being taught Welsh by the oral method. They must therefore have been familiar with the idea that words can be learnt from pictures. Yet, when free to do as they liked, less than half of them adopted this method to the exclusion of all others, whilst nearly one-third only practised the words with their English equivalents. It is therefore incorrect to say that it is more "natural" for these girls to learn words from pictures.

As before, introspections were taken at the end of the second test. These, too, give results of interest in the present connexion, namely:—

(1) Of the seven who had learnt the French words with their English equivalents, *one* reproduced the right French words mechanically, and was conscious of no imagery either before or after the word. The other *six* showed a marked tendency to use imagery of their own. One of these was conscious of the English word for one of the pictures, another was conscious of it twice; otherwise the English did not appear in the introspections. Only one girl thought of the practice-pictures, and she only used them for two of the words.

(2) Of the twelve girls who had during the week thought of the French words in terms of the practice-pictures, *three* showed a marked tendency to think of the French first, *four* to think either of the English or of the practice-pictures or of both before they thought of the French, *one* to think of a picture of her own and then of the French. The other *four* girls showed no definite tendency to adopt some one method: for two of them the ratio was 5 : 4 in favour of the French word first, for one 5 : 4 in favour of English and practice-picture first, whilst one girl found that the French word came first in three cases, the practice-picture first in another three, and the two together in the remaining three.

A comparison of (1) with (2) shows clearly that the girls who practised the words with their English equivalents during the week, were at the time of the test much more successful in thinking of the French without the intervention of English or of practice-pictures than the girls who had thought of the words with the practice-pictures during the week. This implies that the seven girls in group (1) were more successful in learning to think of the French words in terms of meaning than were the twelve girls in group (2).

Such a result might, of course, merely indicate that group (1) knew the words better than group (2), but this is not the case. The marks obtained by the two groups at the end of the second test are respectively 77 per cent. and 78 per cent. of the total. The average time taken to reproduce the nine words was 37 seconds for group (1), 31·9 seconds for group (2), a difference which would be in favour of the picture-practised group if it were significant; but which is as a matter of fact barely greater than the standard error of the difference ($= 1\cdot268\sigma$).

Thus the result obtained in this school agrees with that obtained in the other two schools. In both cases the group that practised the French words with their English equivalents appears to have been quite as successful as the other in learning to think of them in terms of meaning. Further, as was shown above, children aged eleven to thirteen

appear to learn single words as readily from their English equivalents as from pictures. There is therefore no reason for avoiding the translation of single words in French reading lessons.

On the contrary, the results obtained from my experiment seem to indicate that those teachers are right who insist on giving a certain amount of old-fashioned French-English and English-French vocabulary drill, since this is apparently the quickest way to make children think of single French words directly in terms of meaning. Further, common idioms should probably be taught in the same way before any analysis of the whole phrase is attempted. This does not, of course, imply that we should give up the oral method of teaching modern languages; for it is indisputable that nothing but continual practice can give power to speak and understand a foreign language. What the result obtained in this experiment does appear to justify is the freer use of English in the early stages of language teaching, at any rate when dealing with pupils over eleven years of age. Probably the elementary stage would be overcome more quickly if beginners of this age learnt new words and phrases from their English equivalents before practising them in conversation. As pointed out above this is not so necessary in advanced classes, because it is there often possible to explain a new word in terms of other known words. When this is not possible then it is probably always better to translate the word, in order to interrupt the flow of thought as little as possible.

SENSE DISCRIMINATION OF FEEBLE-MINDED CHILDREN.

(A paper prepared for the 1913 Annual Meeting of the American Psychological Association at New Haven, being a digest of a research afterwards published in *The Training School Bulletin*, vol. xi, Nos. 7 and 8, Nov. and Dec., 1914, pp. 110-118 and 135-144, under title of "Sensory Discrimination in Normal and Feeble-Minded Children," by Anna M. Petersen and E. A. Doll).

By E. A. DOLL, Assistant Psychologist, The Training School at Vineland, N.J.

One of the constantly pressing questions in the study of the psychological aspects of mental defectives is that of mental constitution or psychical equipment. Since the work of Binet it has come to be pretty generally accepted that the fundamental manifestation of mental defectiveness is one of intellectual defect, a defective judgment, an inability to meet novel conditions. The typical mental defective is almost wholly a creature of habit, as the very surprise and pleasure that we evidence at any expression of originality on his part bears witness. But since mind is not wholly intellect, we may examine feeble-mindedness from other than the intellectual aspect. "What is feeble-mindedness?" is a frequent question nowadays, and although we may have ready answers to it we are still far distant from a final and definite dictum.

For some time it has been recognized that mental defectiveness is a general mental weakness, a relative mental incapacity. In our work with defectives we have been much interested to discover in just what respects feeble-mindedness is something more than simply intellectual weakness, just as mind is something more than intellect. Sensory capacity among the feeble-minded has generally been accepted as noticeably below that of normals. In order to be sure of this I have begun a series of experiments in sensory discrimination to determine the actual sensory capacities of the various grades of mental defect. I have here to report the first and most complete of these, an experiment in the discrimination of lifted weights.

The primary purpose of this experiment was to examine the capacity of the various grades of feeble-mindedness with a view to its bearing on the mental constitution of the feeble-minded. A secondary purpose of the experiment was two-fold—first, to establish norms of weight discrimination for quantitative comparison with those of normal children of the same mental age; and, second, to discover whether or not there might be some diagnostic value in the weight discrimination test.

The experiment is the same as that outlined in Whipple's "Manual of Mental and Physical Tests." The apparatus consisted of a set of loaded cartridges of the shot-gun type ranging in weight from 80 to 100 grammes, by two-gramme increments between 80 and 90 grammes and by one-gramme increments above 90 grammes. The general procedure for the experiment is described in Whipple's "Manual." This procedure was followed as closely as possible.

The feeble-minded subjects of the experiment consisted of 226 feeble-minded "children" ranging from high-grade idiocy to high-grade morosity, all inmates of the Training School at Vineland. All the "children" available (except most of the idiots, who invariably failed in the test) were examined, regardless of mental type or chronological age. The examinations were conducted in the examining rooms of the Research Laboratory. The experimentation was conducted by Miss Petersen, a research student of the Laboratory, under careful instruction and supervision. After completing the tests with defectives, we were unable to find in the literature of the subject any comparable normal standards that could be compared with our results by mental age. Miss Petersen therefore made a complete examination of all the available children in the public schools at Vineland whose ages were from six to eleven years. These children were examined in the school buildings during school hours. For the most part we limited ourselves to children for whom we had Binet mental ages for that same year. We accepted and used all children who tested not more than three years retarded. In all, 277 cases were examined, of which 264 were included in the final tables.

The results of the experiment are at first sight somewhat obscure. In the original records it would be exceedingly difficult to take any single tests and differentiate the subjects either for normality or for mental age. In some cases modal averages are quite clear, but this is not sufficiently frequent to be usable. Moreover, these modal averages do not differ markedly from each other. It is only by taking the weighted arithmetic averages of the various grades and types that any differences can be made to appear. When this is done it is seen that there is a constant increase in discrimination with mental age both with normal children and with defectives. This increase is from a difference limen of 11.0 grammes at 5 years to one of 5.0 grammes at 14. In the case of defectives, no child is able to perform the experiment until the mental age of 6, and then the difference limen is 9.5 grammes, and drops to 6.0 grammes at 11 years mental age. The curve for defectives runs noticeably higher at every age-level but 8 years. This would appear to confirm our hypothesis that the discrimination of defectives is not so good as that of normals. But this does not necessarily follow, for this difference is not so real as it is apparent. Discrimination of all kinds is very largely a matter of attention and judgment. It is well established that defectives are inferior to normals even of the same mental age in judgment. This small difference of discrimination might therefore very easily be accounted for on an intellectual rather than a sensory basis. My contention may seem at first sight rather barefaced, but my experience with defectives in a variety of sensory tests leads me most firmly to believe that this is the case. Our experiment is, therefore, in part a failure, since it did not sufficiently rule out of account factors other than sensory. The net result, then, of the comparison of defectives with normals is that there is no appreciable difference between the sensory discrimination of the lifted weights.

In conclusion, I wish to indicate an implication which these results have for present-day pedagogy. At the present time experiments in sensory capacities are

of considerable import for the pedagogy of normal and defective children. Much time and energy are being expended in meeting the feverish demand for "sense-training," particularly in the special classes and in the primary grades. Most of the Montessori system has its basis, if not its ends, in the training of the senses to almost hyper-acuity, and to the Montessori movement may be ascribed much of the existing demand for sense-training in general. But very little actual measurement of the results obtained has as yet been attempted. The results from this present experiment certainly indicate that nothing is to be gained from the training of the muscle sense. How far this conclusion applies to the other senses—touch, smell, taste, sight, and hearing—is purely a matter of theory and conjecture. The implication certainly is that formal sense-training is not only largely unnecessary, but that the extent and permanence of its effects are open to question. And if sense-training has as its ultimate ends the cultivation of the other faculties, or of the self, then it must meet the negative conclusions that have been obtained in the experimental measurements of transfer of training, formal discipline, &c.

Summary.

- (1) Discrimination of lifted weights is a function of intellectual rather than of sensory capacity.
- (2) The discrimination of defectives is, on the average, slightly below that of normals of the same mental age, but this is not apparent from individual performances. Defectives also are more variable than are normals. Both of these inferiorities may be accounted for on an intellectual rather than a sensory basis. In general, the sensory capacity of defectives in muscle sense is not noticeably below normal.
- (3) There is a positive correlation with mental age, but no correlation with chronological age except where these are identical; $r = .36$ for defectives, and $r = .65$ for normals.
- (4) The test is not diagnostically valuable except in the types of success in following instructions. Inability to do the test in the prescribed way indicates a mental age of below eight years.

NORMAL PERFORMANCES IN FUNDAMENTAL ARITHMETICAL PROCESSES.

By J. A. GREEN, M.A.

THE tables following continue the work described in the last volume of this Journal (Vol. 3, No. 5, pp. 319 ff.). Instead, however, of presenting the figures in half-year groups, they are given for whole years. In the later enquiries, a series of standardized tests worked out by Mr. Burt were used. These tests are so devised that they may be easily changed without altering the relative difficulty of the tests. The results were presented to the Education Section of the British Association at its Newcastle meeting as part of a report of the Committee in Mental and Physical Factors involved in Education. As they were not ready in time to be printed in that report, I give them here for what they are worth.

The following points may be noted.

1. The effect of repeating the tests even at considerable intervals of time. In nearly all cases the second results are markedly better than the first. Often the improvement continues steadily right up to the fourth test. This brings out a certain weakness in Dr. Ballard's plan of taking the results of the first test as representing the normal school performance. Of course, in this case, all schools were started "from scratch," but a second test has the great advantage that the pupils then know exactly what is expected of them. The amount of improvement varies considerably, and the interesting problem arises

as to what point continued practice, say at weekly intervals, might cease to produce observable improvement.

2. The high Standard Deviations. These fall generally between thirty and fifty per cent of the average performance. Practice, as far as it is shown on these tables, does not appear to reduce these deviations sensibly. Some reduction took place in twenty-two cases, but in seventeen cases the deviation was either unaffected or actually increased. Improvement from this point of view is much greater in the C. School than in the W.R. School.

3. The relative evenness of the correlations. These were worked out by the Product-moment formula.

TABLE I.
AVERAGES.—ADDITION AND SUBTRACTION.

				8		9		10		11		12		13	
				A	S	A	S	A	S	A	S	A	S	A	S
W. R. Sch. (M)	...	Boys	1	...	...	...	...	28	53	30	64	34	65	32	65
			2	...	...	...	...	36	63	41	72	43	82	44	77
			3*	...	...	...	...	35	65	44	77	46	91	47	86
			4*	...	...	...	...	38	72	46	82	48	90	49	97
C. Sch.	...	Boys	1*	...	18	31	23	43	31	60	34	66	36	70	
			2*	10 22	18	35	26	45	35	64	36	74	43	81	
R. Sch. (M)	...	Boys	1	...	17	19	22	32	28	45	32	59	30	54	
C.K. Sch. (M)	...	Boys	1*	21 32	23	41	27	50	37	60	35 58	35 54†			
			2*	...	...	...	...	...	...	...	...	...			
W.R. Sch. (M)	...	Girls	1	14 16	20	26	24	44	33	53	32 58	39 68			
			2	19 23	30	40	35	58	41	66	41	68	47	86	
			3*	19 30	26	39	34	59	40	69	42	73	48	90	
			4*	20 36	26	50	33	65	40	78	44	81	46	98	
N. Sch.	...	Girls	1*	8 17	14	27	19	43	23	52	29	60	34	76	
			2*	...	...	...	...	...	...	...	...	...	...		
R. Sch. (M)	...	Girls	1	...	25	42	31	58	36	58	36 57	39 64			
C.K. Sch. (M)	...	Girls	1*	20 36	23	41	28	54	31	62	30 54	33 58†			
			2*	...	...	...	...	...	...	...	...				
Average				16 27	22 36	29 54	36 64	38 71	40 78						

TABLE II.
AVERAGES.—MULTIPLICATION AND DIVISION.

				8	9	10	11	12	13						
				M	D	M	D	M	D	M	D				
W.R. Sch. (M)	...	Boys	1	...	...	59	33	68	36	75	38	78	42		
			2	...	...	61	31	72	43	79	51	79	51		
			3*	...	...	67	43	71	60	79	63	81	66		
			4*	...	...	58	45	69	60	74	66	81	69		
C. Sch.	...	Boys	1*	...	33	17	39	25	57	42	67	59	72	60	
			2*	23	14	32	19	40	26	61	46	69	57	80	63
R. Sch. (M)	...	Boys	1	...	...	29	10	45	23	68	30	85	44	82	39
C.K. Sch. (M)	...	Boys	1*	37	27	31	23	41	34	48	41	48	38	43	30†
			2*	...	...	...	...	...	...	...	...	...	...	...	...
W.R. Sch. (M)	...	Girls	1	22	6	38	16	51	26	67	37	70	43	87	48
			2	22	5	41	15	56	29	71	40	71	44	89	56
			3*	26	15	36	26	61	43	68	54	76	58	88	76
			4*	25	14	41	27	51	36	61	55	71	78	83	66
N. Sch.	...	Girls	1*	18	8	22	12	29	17	40	27	49	30	58	37
			2*	...	...	...	...	...	...	...	...	...	...	...	...
R. Sch. (M)	...	Girls	1	...	...	66	28	72	38	63	38	82	49		
C.K. Sch. (M)	...	Girls	1*	35	23	32	22	40	31	50	38	39	37	50	34†
			2*	...	...	...	...	...	...	...	...	...	...	...	...
Average ...				26	14	30	17	51	32	63	43	67	51	80	55

* Schools marked thus took the standardized tests all through.

† This is a Standard V School. Normally children of 12 pass to a Higher Standard School. Only a weak remnant remains (about twenty boys and twenty girls). The italicized figures are not included in the averages.

TABLE III.—STANDARD DEVIATIONS.

ADDITION AND SUBTRACTION.

	8		9		10		11		12		13	
W.R. Sch. (M)												
Boys 1	...		...		7.4	14.7	11.1	23.3	9.2	19.2	6.5	23.3
2	...		...		11	18.7	16.6	30.8	15	27.1	11.4	16.6
3*	...		...		29.3	18	17.3	32.8	14.0	28.8	12.7	26.7
4*	...		...		11.9	21.2	20.9	42.1	17.5	36.8	16.3	30.6
C. Sch. ... Boys 1*	...		7.4	20.63	24.3	20.7	11.3	24.6	13.9	27.0	14.2	28.1
2*	8.9	13.3	8.5	21.6	9.3	20.1	14.0	24	13.5	30	15.1	29.1
R. Sch. (M)												
Boys 1	...		5.4	11.6	10.1	16.8	9.0	15.5	9.	20.0	15.0	24.4
C.K. Sch. (M)												
Boys 1*	5.2	8.7	6.6	14.4	8.5	17.1	11.6	20.2	6.2	20.6	7.1	13.3*
2*	...		...		...		...		...		...	
W.R. Sch. (M)												
Girls 1	4.9	11	7.9	14.9	8.7	17.2	8.3	17.4	10.0	18.1	8.4	27.9
2	7.2	10.5	9.3	17.6	12.3	19.3	14.7	23.4	12.1	16	14.1	33.7
3*	8.1	13.8	9.7	18.4	10.4	18.6	11.8	26.5	18.8	24	15.5	35.9
4*	7.2	16.6	11	24.1	13.11	27.4	13.7	30.0	25.2	26.4	13.6	38.9
N. Sch.... Girls 1*	3.8	10.4	8.4	19.1	11.0	27.8	11.3	24.1	9.9	23.5	11.5	25.7
2*	...		...		...		...		...		...	
R. Sch. (M)												
Girls 1	...		...		11.4	22.4	10.1	22.6	24.3	11.1	23.	12.5
C.K. Sch. (M)												
Girls 1*	5.7	11.2	6.9	18	24.4	11.5	9.1	20.1	10.0	20.2	11.5	16.2*
2*	...		...		...		...		...		...	

TABLE IV.—STANDARD DEVIATIONS.

MULTIPLICATION AND DIVISION.

	8		9		10		11		12		13	
W.R. Sch. (M)												
Boys 1	...		...		...	18.1	...	18.5	...	16.5	...	19.7
2	...		...		19.3	17.2	28.7	25.3	25.5	23.1	24.5	15.0
3*	...		...		24.2	20	33.8	34.3	25.1	25.4	22.7	23.7
4*	...		...		17.8	18.6	30.8	38.9	23.4	26.7	22.5	23.4
C. Sch. ... Boys 1*	...		13.4	11.0	18.	16.5	25.7	27.	26.	29.8	27.4	25.1
2*	10.8	9.6	13.	11.1	17.7	13.6	23.2	24.4	28.5	30.9	27.7	26.3
R. Sch. (M) Boys 1	...		10.4	7.8	25.9	20.3	24.2	21.1	23.7	20.1	30.8	21.6
C.K. (M) Boys 1*	9.4	8.7	10.5	9.5	14.9	17.3	16.9	20.4	16.1	15.9	12.2	12.2*
2*	...		...		...		...		...		...	
W.R. Sch. (M)												
Girls 1	...	4.5	...	11.5	...	16.5	...	18.9	...	19.7	...	19.8
2	7.8	5.	17.6	13.4	20.2	19.1	26.3	21.9	26.1	25.2	25.5	23.6
3*	9	6.8	16.4	15.4	20.9	26.7	22.9	26.7	24.2	22.9	33.3	34.3
4*	8.5	6.7	18.6	16.5	20.1	20.3	19.1	28.2	22.4	29.8	28.3	29.6
N. Sch.... Girls 1*	7.3	5.8	12.4	9.5	18.3	14.	21.7	18.8	19.6	17.0	22.4	18.3
2*	...		...		...		...		...		...	
R. Sch. (M)												
Girls 1	...		...		23.2	16.2	20.4	15.0	23.0	21	30.7	21.4
C.K. Sch. (M)												
Girls 1*	13.7	10	11.5	7.4	17.3	15.8	18.4	23.3	17.7	17.1	15.8	10.5*
2*	...		...		...		...		...		...	

* See notes to Tables I and II.

TABLE V.—STANDARD DEVIATIONS AS PERCENTAGES OF
AVERAGE MARKS.

ADDITION AND SUBTRACTION.

				8	9	10	11	12	13
				A S	A S	A S	A S	A S	A S
W.R. Sch. (M) ... Boys	1	...	...	...	...	26 28	37 36	27 30	20 36
	2	...	...	...	...	31 30	40 40	37 33	26 22
	3*	...	...	...	...	34 29	39 44	30 32	27 32
	4*	...	...	...	...	31 29	45 51	36 41	33 32
C. Sch. Boys	1*	...	...	41 67	106 48	36 41	32 41	40 40	...
	2*	89 60	47 62	44 45	40 38	38 40	35 36	...	...
R. Sch. (M) Boys	1	...	...	32 61	46 53	32 34	28 34	50 45	...
C.K. Sch. (M) ... Boys	1*	21 32	23 41	27 50	37 60	35 58	35 50*	...	...
	2*	...	...	...	...	...	...	...	...
W.R. Sch. (M) ... Girls	1	35 70	40 57	36 39	25 33	31 31	22 41	...	...
	2	38 50	31 44	36 33	36 35	30 23	30 39	...	...
	3*	43 46	38 47	31 32	30 38	45 34	32 40	...	...
	4*	36 46	47 48	40 42	34 38	57 35	30 40	...	...
N. Sch. Girls	1*	38 61	60 71	60 65	49 46	34 39	34 34	...	...
	2*	...	...	...	...	...	...	...	...
R. Sch. (M) Girls	1	...	...	37 39	28 39	68 19	60 20	...	...
C.K. Sch. (M) ... Girls	1*	35 32	33 44	87 21	29 32	33 38	35 28*	...	...
	2*	...	...	...	...	...	...	...	...
Averages... ..				31 48	39 54	48 39	36 41	38 32	34 35

* Schools marked thus took standardized tests.

TABLE VI.—STANDARD DEVIATIONS AS PERCENTAGES OF
AVERAGE MARKS.

MULTIPLICATION AND DIVISION.

				8	9	10	11	12	13
				M D	M D	M D	M D	M D	M D
W.R. (M) Boys	1	...	...	...	...	— 55	— 51	— 43	— 47
	2	...	...	...	...	32 55	40 59	32 45	31 29
	3*	...	...	...	...	36 46	49 57	32 40	28 36
	4*	...	...	...	...	31 41	45 65	32 40	28 34
C. Sch. Boys	1*	...	...	41 59	46 66	45 64	39 51	38 42	...
	2*	47 68	41 58	44 52	38 53	41 54	35 42	...	...
R. Sch. (M) Boys	1	...	...	36 78	58 88	36 70	28 46	38 55	...
C.K. Sch. (M) ... Boys	1*	25 32	34 41	36 51	35 50	34 42	28 41*	...	...
	2*	...	...	...	...	...	...	...	...
W.R. Sch. (M) ... Girls	1	— 75	— 72	— 63	— 51	— 46	— 41	...	...
	2	35 100	43 89	36 66	37 55	37 57	29 42	...	...
	3*	35 45	46 59	34 64	33 49	32 39	38 32	...	...
	4*	34 49	45 61	39 56	31 51	32 38	34 45	...	...
N. Sch. Girls	1*	41 72	56 79	63 82	54 70	40 56	49 50	...	...
	2*	...	...	...	...	...	...	...	...
R. Sch. (M) Girls	1	...	...	35 58	28 39	36 55	25 44	...	...
C.K. Sch. (M) ... Girls	1*	39 42	36 34	43 51	37 61	45 46	32 31*	...	...
	2*	...	...	...	...	...	...	...	...
Averages				37 60	42 63	41 60	39 56	34 47	32 41

* See footnote to Tables I and II.

TABLES VII—XII.

CORRELATIONS.

ADDITION AND SUBTRACTION. SCHOOLS.							ADDITION AND MULTIPLICATION. SCHOOLS.						
Age.	W.R. (G) (S.12)	W.R. (B) (S.12)	C.(B.) (S.11)	C.(B) (S.12)	N.(G.) (S.11)	Ave.	W.R. (G) (S.12)	W.R. (B) (S.12)	C.(B) (S.11)	C.(B) (S.12)	N.(G) (S.11)	Ave.	
8—9	.48	...	...	...	.67	.53	.36	...	...	...	.52	.43	
9—10	.73	...	.77	.62	.45	.64	.61	...	.66	.57	.93	.69	
10—11	.72	.33	.30	.71	.85	.58	.75	.73	.31	.60	.76	.63	
11—12	.63	.74	.86	.49	.84	.71	.72	.71	.87	.63	.81	.75	
12—13	.58	.45	.72	.77	.84	.67	.63	.59	.91	.86	.81	.76	
13—14	.91	.37	.70	.87	.87	.74	.98	.59	.71	.78	.59	.73	
Average ..	.68	.47	.67	.69	.75		.68	.66	.69	.69	.74		

ADDITION AND DIVISION.							SUBTRACTION AND MULTIPLICATION.						
Age.													
8—9	.39	...	...	...	.38	.39	.27	...	...	...	.72	.39	
9—10	.63	...	.61	.64	.69	.64	.67	...	.54	.57	.92	.68	
10—11	.57	.59	.28	.36	.75	.51	.73	.56	.82	.77	.88	.75	
11—12	.77	.76	.87	.70	.92	.80	.70	.67	.77	.79	.83	.75	
12—13	.53	.54	.93	.90	.67	.71	.66	.68	.85	.75	.80	.75	
13—14	.99	.69	.71	.73	.60	.72	.82	.45	.71	.73	.76	.69	
Average ..	.65	.65	.68	.67	.67		.65	.59	.74	.72	.82		

SUBTRACTION AND DIVISION.							MULTIPLICATION AND DIVISION.						
Age.													
8—9	.56	...	...	...	.68	.62	.29	...	...	...	.75	.52	
9—10	.71	...	.64	.49	.75	.65	.73	...	.68	.74	.71	.72	
10—11	.74	.61	.81	.56	.80	.70	.71	.53	.80	.73	.84	.72	
11—12	.67	.71	.78	.70	.85	.74	.69	.82	.92	.91	.83	.83	
12—13	.58	.69	.76	.69	.78	.70	.70	.28	.87	.91	.81	.71	
13—14	.80	.73	.75	.77	.71	.75	.87	.73	.75	.78	.68	.76	
Average ..	.68	.69	.75	.64	.76		.67	.59	.80	.81	.77		

TRAINING COLLEGE ASSOCIATION.

TWENTY-FIFTH ANNUAL GENERAL MEETING, DEC. 19th, 1916,
HELD AT THE CAXTON HALL, WESTMINSTER.

MORNING SESSION.

MISS M. M. ALLAN (PRESIDENT) IN THE CHAIR.

- (1) The Minutes of the last Annual General Meeting, held on Jan. 5th, 1916, were read and confirmed.
- (2) Miss F. M. Smith and Dr. J. F. Unstead were appointed scrutineers of the voting papers for Vice-Presidents.
- (3) The Report and Cash Statement for 1916 were adopted, on the motion of the President and Canon Stevenson.
(Mr. T. Raymont, President for 1917, here took the chair.)
- (4) The following elections for 1917 were declared:—

Vice-Presidents—

Miss B. Forth, Salisbury College.

Rev. Canon H. Wesley Dennis, St. John's College, Battersea.

Hon. Secretary and Treasurer—

Major H. E. Griffiths.

- (5) The President then delivered the Presidential Address.
- (6) Hearty votes of thanks were accorded the outgoing President for her services during the past year, and the new President for his address, on the motion of Canon Stevenson and Prof. J. A. Green. Miss Allan and Mr. Raymont replied.

It was decided that the President's address should be printed.
(v. March issue of this Journal.)

- (7) The proposed new rules, as drafted by the Committee, were then considered.

(a) It was proposed and seconded; "That the General Committee be not abolished," but this was lost by a large majority.

(b) The following alterations and additions were decided upon, it being left to the Committee to put them into proper shape where necessary:—

Rule VI. Group 1. Insert "or Professors of Education" after "2 Principals."

Group 4. Insert "the Treasurer" after "Secretary," and after "Editor" insert "of the Journal."

At end of Rule add "No college shall come under more than one group."

Rule XV. After "Two ordinary meetings of the Association" add "one of which shall be held in London and the other at a provincial centre to be determined annually."

Rule XVI. After "The Annual Meeting of the Association shall be held" insert "in London."

Rule XIX. Make clear that the college correspondent shall be appointed by the *Members of the Association* in the college.

Rule XXII. Insert "second" after "ordinary meeting," and delete "in October."

AFTERNOON SESSION.

- (1) A discussion on "Continuation Schools and the Training of Teachers" was opened by Prof. T. P. Nunn and J. L. Holland, Esq., Secretary to the Northamptonshire Education Committee.

The following took part in the discussion:—Dr. Sleight, Mr. Burgess, Miss Catty, Miss Hale, Miss Allan, Miss Dodd, and Canon Blofeld.

It was decided to refer to the Committee the following matters arising out of the discussion, with a view to sending resolutions on the same to the Board of Education—

- (a) Making 14 the compulsory school-leaving age.
- (b) Making continued education compulsory up to the age of 16, the employer to give all necessary facilities for this during the ordinary working hours of the day.

A hearty vote of thanks to Prof. Nunn and Mr. Holland was moved from the Chair, and carried unanimously.

- (2) A cordial vote of thanks was accorded Prof. Green for his continued valuable and onerous work as Editor of the Journal.
- (3) A letter from the Board of Education to the outgoing President relating to the Leeds Training College inquiry was read, stating that it was not possible to publish the report of the inquiry yet.
- It was decided that no further action be taken at present.
- (4) The following resolution of the Northern Branch was handed over to the Committee to deal with:—

"That the Association be asked to press upon the Board of Education the necessity of including Drawing among the possible subjects of all examinations for students entering Training Colleges, as in consequence of the omission of Drawing from the examinations the subject is generally neglected in the ordinary curriculum of the higher forms of Secondary Schools."

TRAINING COLLEGE ASSOCIATION.

MEETING OF GENERAL COMMITTEE, MARCH 9th, 1917.

The following signed the attendance roll:—Mr. T. Rayment (President), Rev. Canon Dennis and Miss B. Forth (Vice-Presidents), Miss M. M. Allan (ex-President), Rev. Canon Blofeld, Rev. Canon Stevenson, Mr. T. P. Holgate, Miss H. M. Raw, Miss E. C. Ivatt, Miss F. M. Smith, Miss M. Grey, Mr. J. Jones, Miss S. E. S. Richards, Miss F. Exton, Miss K. T. Stephenson, Miss L. M. Swinburn, Miss E. Noble, Rev. R. Hudson, Prof. J. A. Green, Mr. H. S. Cooke, Miss M. Atkinson Williams, Miss E. B. Cole, Miss C. C. Graveson, Miss N. Catty, Miss E. Frodsham, Miss M. Saunders, Miss F. A. Wood, Miss W. Hindshaw, Rev. H. A. Bren, Rev. Dr. Workman, Mr. A. A. Cock, and the Hon. Sec.

Apologies for non-attendance were received from:—Mr. D. Salmon, Miss Jenkins, Miss Ventham, Miss Blyth, Rev. J. A. Hannah, Miss Lloyd Evans, Miss F. Johnson, Miss Mackintosh, Rev. V. W. Pearson, Prof. A. Henderson.

1. The minutes of the last meeting were confirmed.
2. The new Constitution, which was discussed in draft at the Annual Meeting and handed over to the Committee to set straight as regards the wording in certain places, was finally decided upon as follows:—

TRAINING COLLEGE ASSOCIATION

(with which is amalgamated the Teachers' Training Association).

CONSTITUTION.

Title.

I The Association shall be called "The Training College Association," but in all official documents of the Association there shall be inserted underneath and within brackets the words, "with which is amalgamated the Teachers' Training Association."

Object.

II The object of the Association shall be to furnish opportunity for the discussion of educational questions, especially those relating to the training of teachers, and for the expression of a collective opinion thereon.

Conditions of Membership.

III There shall be eligible as members of the Association—(1) the Principals and all members of the Teaching Staffs of Training Colleges and Training Departments recognized by the Board of Education; and (2) other persons, approved by the Association, who are, or have been, engaged in the work of training teachers.

Subscription.

IV The Annual Subscription shall be 3s. 6d., and shall be payable on January 1st in each year.

V Any member whose subscription is in arrears for more than two years shall, after due notice, cease to belong to the Association.

Executive Committee.

VI There shall be an Executive Committee, which shall be elected annually from among the members of the Association, and shall be constituted as follows:—

	Members.
1. Representing Colleges controlled by, or forming part of, a University or University College (2 Principals or Professors of Education and 2 others)	4
2. Representing Colleges provided by Local Education Authorities—	
(a) For Men only and for Women only (1 Principal and 1 other);	4
(b) Mixed (1 Principal or Vice-Principal and 1 other) ...	
3. Representing Colleges provided by other bodies—	
(a) For Men (2 Principals and 2 others);	8
(b) For Women (2 Principals and 2 others)	
4. Official members, viz.:—The President, the ex-President, the 2 Vice-Presidents, the Secretary, the Treasurer, the Editor of the Journal, and either the President or Secretary of each local Branch, as determined by that Branch...	8 or 9

N.B.—No College shall come under more than one Group.

VII For purposes of nomination and election, each group of colleges indicated in Rule VI, viz., 1, 2 (a), 2 (b), 3 (a), and 3 (b), shall be taken separately, any member in a group being entitled to nominate only from that group, and to vote only in that group.

VIII Nominations for the Executive Committee shall be sent to the Secretary not later than October 15th in each year. In the event of there being more than the requisite number of nominations for any group, voting papers shall be sent to those members of the Association who are entitled to vote in that group.

IX No member of the Executive Committee other than an official member may serve for more than four years consecutively.

X The Executive Committee shall have power to act in any business that arises between meetings of the Association, provided that no such action be in contravention of any rule of the Association, and provided also that, if a third of the members present so desire, no such action be taken without the sanction of a meeting of the Association.

XI The Executive Committee may at its discretion co-opt not more than two other members of the Association.

XII Any vacancy in the Executive Committee occurring in the course of the year among the representatives of any group of colleges shall be filled up by the Committee from among the members of the Association in that group, in accordance with the constitution of the Committee as determined by Rule VI.

XIII The Executive Committee shall meet at least three times a year, i.e., before each meeting of the Association (see Rules XV—XVII), and at such other times as the President may direct.

XIV Seven members of the Committee shall form a quorum.

Meetings of the Association.

XV Two ordinary meetings of the Association, of which one shall be held in London and the other at a provincial centre to be determined annually, shall be held each year on dates to be fixed at the previous Annual Meeting of the Association.

XVI The Annual Meeting of the Association shall be held in London in December or in January, on a day or days to be fixed at the previous Annual Meeting of the Association.

XVII A special meeting of the Association may be summoned at the discretion of the President, or by order of the Executive Committee, or on the signed request of not less than forty members of the Association.

XVIII All notices of motion for the Annual and Ordinary Meetings of the Association must be sent to the Secretary at least four clear weeks before the date fixed for the meeting.

College Correspondents.

XIX In each college having on its staff two or more members of the Association, the members of the Association in that college shall appoint annually a College Correspondent, whose duty it shall be to collect and to forward to the Treasurer the subscriptions of members in that college; to transmit to those members all notices received for that purpose from the Secretary; and generally to take cognizance of the interests of the Association in that college.

Officers of the Association.

XX The Officers of the Association shall be a President, two Vice-Presidents (one a woman), the ex-President, a Treasurer, a Secretary, and the Editor of the *Journal of Experimental Pedagogy and Training College Record*. The office of Treasurer and Secretary may be held by the same person.

XXI All the Officers shall retire at each Annual Meeting, but shall be eligible for re-election. Except in the event of the re-nomination for special reasons of the President, one of the Vice-Presidents shall be elected President for the ensuing year at the first ordinary meeting of the Association.

XXII The Vice-Presidents, the Treasurer, the Secretary, and the Editor shall be nominated at the second ordinary meeting of the Association. In the event of there being more than one nomination for any of these offices, voting papers shall be sent, through the College Correspondent, to members of the Association. These papers shall be returned to the Secretary, and the result shall be announced at the Annual Meeting.

XXIII Any vacancy occurring in the course of the year among the officers shall be filled up by the Executive Committee; but a Vice-President so appointed shall not become President without the opportunity being afforded to all members of the Association to nominate other candidates, and, if necessary, to elect the President by vote.

Alteration of Rules.

XXIV No rule shall be altered except at the Annual Meeting of the Association, and then only in case there is a majority of two-thirds of those present in favour of the proposed alteration.

Sections and Local Branches.

XXV The Association shall consider applications from groups of colleges for recognition as Sections (i.e., according to educational type) and Local Branches (i.e., according to geographical situation).

XXVI Only members of the Association in any group shall be eligible for membership of the corresponding section or local branch.

XXVII Sections and local branches shall elect their own officers and make their own arrangements for meetings.

XXVIII The expenses connected with sections or local branches shall be met by a small subscription from the members.

XXIX The Association shall not accept responsibility for any resolution adopted by sections or local branches until it has been confirmed at a general meeting or in committee.

XXX No group of colleges shall be entitled to the status of a section or local branch until it has been recognized as such by the Association at a general meeting or in committee.

3. It was decided to send the following resolutions to the Board of Education (as embodying the feeling expressed at the Annual Meeting):—

- (i) That in the opinion of this Association the school-leaving age should be 14, and the child should not leave until the end of the term in which it reaches the age of 14. Continued education should be compulsory up to the age of 16, and it should be incumbent upon employers to give all necessary facilities for this education during the ordinary working hours of the day.
- (ii) This Association urges upon the Board of Education the necessity of placing Art in the ordinary curriculum of the higher forms of secondary schools.

4. The Rev. Canon H. Wesley Dennis was elected President for 1918, on the motion of Miss Forth (Vice-President).

5. It was decided to hold the next Annual Meeting in January, 1918, in connexion with the Conference week of Educational Associations.

6. The Representative Sub-Committee for 1917 was appointed as follows:—

- | | |
|---|--|
| I. London and Suburban Residential Colleges | (Rev. R. Hudson (Chelsea).
Miss F. Exton (Avery Hill).
Mr. J. W. Jarvis (Chelsea).
Miss C. G. Luard (Whitelands). |
| II. Country Residential Colleges | (Rev. H. A. Bren (Cheltenham).
Miss J. M. Dunlop (Saffron Walden).
Miss B. Dunn (S. Gabriel's).
Mr. E. H. Harding (Bangor). |
| III. University Day Colleges | (Prof. A. Henderson (Nottingham).
Miss W. Hindshaw (Manchester).
Miss M. Punnett (London Day).
Dr. J. F. Unstead (Goldsmiths').
Miss Grey (Graystoke Place). |
| IV. Municipal Colleges | (Mr. Lewis (Dudley).
Dr. Helen Wodehouse (Bingley).
Rev. V. W. Pearson (Sheffield). |

With the Officers ex-officio.

7. The Financial Report of "The Journal" for 1916 was presented by the Editor (Prof. J. A. Green), and unanimously adopted.

A hearty vote of thanks was accorded Prof. Green for his continued work as Editor.

8. The further report of the English Sub-Committee was presented by the convener (Miss Stephenson) and received.
9. It was decided to inform the Board of Education that the Association would be glad to appoint representatives to confer with the Board's officers regarding the syllabuses of instruction and the methods of examination in History and in Mathematics.

It was left to the Representative Sub-Committee to organize the sub-committees for these subjects.

10. A letter was read from the Ling Association asking whether this Association would be prepared to contribute towards the guarantee fund in connexion with a proposed display of Swedish gymnastics in London towards the end of March.

It was decided to take no action on this letter.

11. It was decided to ask the Board to publish in full their report of the recent inquiry into the resignations at the City of Leeds Training College.

REVIEWS.

England's Boys. A woman's war poems. By C. A. Renshaw. (62 pp.) Erskine Macdonald. (2/- net.)

It is a great pleasure to come upon the work of an old Training College student of recent standing in the Twentieth Century Poetry Series. Occasional poems of hers have appeared in the *Poetry Review*, and like many others less gifted than herself, she has found the war, its details and its circumstances, hideous as well as heroic, a source of special inspiration.

Miss Renshaw's mastery of the technique of verse is astonishing. The sonnet is apparently her favourite medium, and whether it is used to express a sense of desolation on the grand scale, as when we think of Louvain or the Cathedral of Rheims—

"Blind windows and blank walls and silent dust
Where once stood marvels of embodied thought,
The pride of man, the very soul of France."

or to bring to our minds the simpler but not less appalling havoc which has come upon the lives and fortunes of the peaceful folk living in the war area, it is equally effective. We are never haunted by the feeling that some less elaborate form would have served the purpose better.

In the sonnet quartette, entitled "The Farmhouse in France," the remorseless ruin which on a sudden came upon those unhappy people is forcefully brought to our minds. We have first three sonnets descriptive of successive seasons in the homestead.

"Set in green fields and glamour of wild flowers,
Where breezes die at dusk, and every morn
Straight wind tracks darken through the yellowing corn
Like running flames, when sunswept clover-bowers
Thrill with bees' wings through all the hot noon-hours;
And in the cobbled yard, young things new-born
Preen tiny wings and start with wakening scorn,
While fluffy ducklings dream of summer showers."

And then the change !

Unpeopled ruins where the lone wind weeps
In cold abandonment ; shell-battered bricks
And broken tiles pierced through with jagged sticks
That once were rafters ; filthy desolate heaps
Of littered straw ; a pond whose stony deeps
Are tinged with red ; smoke-blackened plundered ricks,
Chair legs—a bed—a sad mute crucifix ;
A gun that clatters o'er the cobbled steepes.

Miss Renshaw's fondness for the sonnet does not, however, blind her to its limitations. She is equally at home in other verse forms, which range in this volume from a sort of rag-time jig in "The Cry from the City"—

'Cushla ! 'Cushla ! 'Cushla ! 'tis the soul of you I'm wanting,
Here in dingy Sheffield with its smoke-dark streets.

to the simple iambic dignity of "The Great War," the opening stanza of which describes that dreadful moment of suspense in August, 1914, when we awoke to the awful possibility of war.

"Into the Summer-magic stole a hush
As of dread, silent things that creep and slay,
The slow world-pulses quickened, and the day
Grew red and lurid with the battle-flush.

The examples already quoted show that Miss Renshaw is something more than a maker of verses. She has a poet's vision and a poet's sympathy. Her emotion is sometimes rather obvious, popular, even sentimental. These are faults of youth which we hope to see removed by added experience and a keener critical sense. She will ere this herself have noticed how frequently she uses the epithets "red" and "crimson"—"red Death," "red hail of Death," "red wars," "crimson lure," "pools of red," "crimson sword," "red mists of tears," "red day of blood"—these last three from a single sonnet.

In the meantime, we are grateful to her for what she has done, and above all for what seems to me the gem of the selection:—"The Lure of England." Here, as in other places where she is at bottom concerned with the things she knows in direct experience, for example, in the six Sonnets on England, we get a more delicate appreciation, a finer colouring, a truer presentation than could come from the most skilful artist in dealing with situations essentially foreign to him. A sensitive lover of the English countryside, as Miss Renshaw clearly is, may enter intimately into the feelings of the soldier in France who is wounded and sightless, but longs for home. This Miss Renshaw has done with poetic insight and tenderness. We cannot resist the temptation to quote the whole poem as the best evidence of real achievement this interesting little volume contains.

THE LURE OF ENGLAND.

There's a misty sea-girt island in the sunset-haunted West ;
I can see it in my wounded dreams of home.

I can see the dwindling hedgerows where the sparrow builds her nest,
And the grass land with its throne of daisied foam.

Oh ! there's Spring upon the island, and the greening lures me back
To mysterious meres and woodways in the West.

. . . They have stripped my manhood from me, they have stretched
me on the rack . . .

Take me home, a blinded, broken thing, to rest !

I can never see the island with its fields of sheeted gold,
And the wisps of sunset drifting in the West.

Darkness drowns the dim green valleys and the silent hills of old,
And the hedges where the sparrow builds her nest.

Let me put my blind eyes down among the bluebells and the grass,
 Let me feel the brimming coolness on my brow.
 Let me touch the dewy bracken where the dreamful shadows pass,
 I have bled for England! . . . Let her heal me now!

Oh England, misty England, grey and vague across the sea!

All your blue-bells bloom in Maytime, and your skies are throbbing
 blue,

Here the streams are darked with crimson and red death is haunting me.
 England, England! all my hungry heart is yearning back to you.

O my misty sea-girt island in the sunset-laden West!

I can feel your moorland wind upon my eyes;

I can hear your sleepy birdeens in their swaying moonlit nest . . .

England—England! . . . with your bluebells and your skies.

J.A.G.

Janus and Vesta. A Study of the World-Crisis and After. By Benchara Branford.
 (xviii × 316 pp.) Chatto & Windus. 6/-.

(First Notice.)

FEW of the books which pass through the hands of a conscientious reviewer could present greater difficulties than this. Whilst there is not an uninteresting page in the book, its theme is so vast, its setting is so wide, and the way in which the author presents his ideas is so baffling, that critical discussion seems impossible. Mysticism pure and simple, philosophical analysis, wide historical generalizations, and prophetic vision follow each other in an apparently disorderly sequence which provoke opposition or excite dismay in the mind of the busy reader. Indeed, it is not a fireside or a bed-book, nor is it a book which the careful reader will wish to put aside once he enters upon it. The lofty seriousness of the writer commands attention, even when the form and sequence of his chapters make difficulties. Although ostensibly inspired by the events of these days, much of the book was written earlier; some chapters have appeared as separate articles in *Educational* and other *Journals*, and they remain substantially as they were. This, no doubt, accounts for some of the structural difficulties one finds in the book. The independence of the several chapters does not, however, destroy the ultimate unity of the whole or diminish the importance of its message.

The key to the writer's mind is perhaps to be found in his analysis of the mental effect of all crises. At such times, we realize the present so profoundly as "to awaken the deepest slumbers of memory," and so loftily as "to demand the strongest wings of vision." As the present crisis is a world-crisis, humanity is the theme of his memories and visions. A wide historical survey gives opportunity for criticism of national or racial narrowness, of the neglect of the East by the West (*ex Oriente lux*), and is preliminary to a vision of a new era in which world-citizenship shall crown the human endeavour of a Socrates or a Franklin—a time in which formal admission to an order of Honour of Humanity may be the highest recognition the world can grant.

It is impossible to do even bare justice to Mr. Branford's vision of human progress. His historical methods demand the learning of an Acton in the reviewer who, although unable always to follow or verify the facts, may at least note the different results derived from them. The world-crisis, for example, has three different explanations in three different parts of the book. In one place it is the outcome of the conflicting aims of the Pan-Slav, the Pan-Teuton, the Pan-Latin, and the Pan-Angle, aided and abetted by the gross materialism of a machine age. Later in the book the author finds in the present gigantic struggle "a colossal effort on the part of absolutist government to survive in the world-wide movement toward democracy," and in a third place he is convinced that "one at least of the root elements of the present world-crisis arising from the mighty yet anarchic creative practical activities of the West lies in the still mightier creative contemplative activities of the East."

Of course, all these explanations may be true, but explanations of that order of value are not really very helpful, and one has only to start with a certain bias of mind to see a connexion between the Socratic dialogues and the Napoleonic campaigns, or between the Hebrew prophets and the present war. Mr. Branford complains justly of the petty nationalism of historians, and pleads for a world-standpoint which shall give us a world-history completely objective and showing a sane artistic perspective. A world-myth, a world-religion are wanted to give dramatic unity and continuity to the human race; then we may get the human story, but would it not still be charged with *human* bias? Can the history Mr. Branford desires be written by anyone but God?

Whether that be so or not, Mr. Branford would have mankind conscious of his *idola*, and active in his endeavour to overcome the dangers attendant upon them. In the broadest sense, it is the ultimate purpose of education to make him so, and a large part of the book is devoted to the reconstruction of our educational schemes. As the main sources of man's spiritual guidance he begins with the universities. Here, if anywhere, he should find that universal spirit for which he yearns. The cosmopolitan should find in them his home. Modern universities are, however, irretrievably national in their outlook, and if the millennium is to come, a world-university is essential. Whether such an institution, maintained by the nations in concert, isolated in some centrally-situated island (Cyprus, for example), could achieve all that the author suggests may be doubted,—a world language for example, a world religion perhaps, and in any case, a world spirit. Even the admission of women to its cloisters would not prevent its being monastic in spirit.

Withdrawn from intimate contact with real life, its objectivity would surely breed the very doctrinaire whom Mr. Branford elsewhere contemns. More in line with modern tendencies, and better calculated to achieve the object, would be the development of international congresses and the interchange of professors. A world-language might not thus come into being, though, if mankind desired it, a commission *ad hoc* could surely make the choice as well as a collection of learned hermits in Cyprus.

The most important function of the world-university would be the education of international arbitrators chosen in the first instance from those who had acted in that capacity amongst smaller groups at home. The Evolution of the Arbitrator is the subject of a special chapter. It brings irresistibly to mind the education of the philosophers in Plato's Republic. "The ideal arbitrator should be the microcosm of the social macrocosm, with something substantial of the fundamental experience both of governing and governed." "Instead of going into the army, our arbitrator in social disputes may have to get his concrete experience by earning a daily wage and living upon it."

Hereafter follows a chapter on the Evolution of Universities, in which some attempt is made to do justice to the great centres of learning, ancient and modern, in Asia, but we reserve a consideration of this and of Mr. Branford's educational and political visions for our next issue. In the meantime we may commend the book to everyone concerned in the great spiritual problem of the educational and political future of mankind.

J.A.G.

(To be continued).

Four Lectures on the Handling of Historical Material. By C. F. Rushbrook Williams, Professor of Modern Indian History in the University of Allahabad (Allahabad University Publication, No. 1.) Longmans, Green & Co. 3/- net.

THE object of these lectures, originally composed for the benefit of Indian students, is to give the reader an insight into the methods of modern historical investigation. Professor Williams arranges his material under four headings, devoting two lectures to an examination of the value of official and non-official documents, viz.:—treaties, charters, chronicles, memoirs, &c., as sources of history, a third to the consideration of the pitfalls in the path of the historian, and a fourth to the study of a particular problem, the influence of personality upon history. The lectures

are interesting reading, especially that in which the author points the contrast between ancient and modern conceptions of the historian's function and analyses some of the difficulties which confront the conscientious investigator at the present day. A few of Prof. Williams' warnings may sound commonplace, not to say obvious; but it would be quite a mistake to imagine that they are superfluous. The truth is that to be an ideal historian one must possess many qualities which are all too seldom found combined in a single personality, viz.: impartiality, a certain detective zeal, the critical faculty, a habit of accuracy and the capacity to present conclusions, once obtained, in a form which will be attractive, or at least not repellant to the reader. The historian has perhaps yet to be born who will fulfil all these qualifications. The stylist is too often prejudiced and hasty in his judgments; the fluent writer is generally devoid of the critical instinct, the stickler for accuracy tends to become a pedant and a critic of others rather than an active contributor to the sum of historical knowledge. These are the sort of dangers of which Prof. Williams warns the reader in a little book which will be read with interest by all who are concerned with the handling of historical material.

Bulletins of the Bureau of Educational Experiments (New York).

I. *Playthings*. (16 pp.)

II. *Study of Animal Families in Schools*. (20 pp.)

Ten cents each.

I. "Playthings" gives some suggestions of ways in which the school may become a place where children can educate themselves by means of play. Play being the serious business of life to the child, he needs a spacious laboratory in which to carry on his experiments. A consideration of the "tools" of play—tops, sufficient floor space, pictures showing individualistic and social play with free materials, and a small bibliography on play, make up the little booklet.

II. "Study of Animal Families in Schools" is a plea for the keeping of animals as pets in school. The paper is very practical, and suggests how teachers may "open the door of their classroom to admit the historic friends of children, the animals." By initiating the children into the brotherhood of St. Francis a great many incidental values are gained; children readily discipline themselves for the sake of watching and caring for their pets, fear is eliminated, an appreciation of parenthood comes in a natural way, without undue stress or mystery, and the children come to see that "it makes a difference what kind of parents the babies have." It is worth overcoming many of the very real difficulties to catch the radiance on the child's face as he calls joyfully, "I never knew it would do that"! Short notes on the treatment of some animals suitable to keep in school are added, and should be helpful.

W.A.B.

Needlecraft in the School. By Margaret Swanson. Introduction by Professor Adams. (vii + 129 pp.) Longmans, Green & Co. Price 5/-.

TO THOSE who know and have been inspired by "Educational Needlecraft" the second book by one of the authors is very welcome, supplementing as it does much of the former book. Like its predecessor it does not *teach* needlework, it does not give detailed directions as to the making up of an apron, or petticoat, but it does show *how to teach* needlework in the school. Partly because of this it has no trace of the dullness so often associated with needlework books; for of course there never can be dullness in the presence of real children, even school children in a sewing lesson, if the first concern is with the children's interests, and not with the needlework. We shall expect strong appeals to colour, pictures, gaiety, charm—and we find them all. There is a refreshing wideness in the outlook, for the needlecraft as sketched by Miss Swanson flows far beyond the girls' conventional sewing interests. Here boys make flags and belts, and learn with their sisters to darn and fasten buttons, while the girls arrange markets in which the dolls' clothes made by themselves can be bought or sold, trim their hats, and experiment in dyeing with plants within their reach—blackberry leaves, yellow bedstraw, nettles, ivy

leaves, &c. "It is not for what the child achieves or is likely to achieve . . . it is for the memory given, for the impetus to go on, for the scope given towards originality, that the subject possesses value." There is also an interesting section for the Training College student, touching on such points as the Mission of Art, the Class Lesson, and the Exhibition. W.A.B.

Studies in Education. By M. W. Keatinge. (viii+205 pp.) A. & C. Black.

WE are so much indebted already to Mr. Keatinge for his contributions to the History and Theory of Education that any book from his pen is bound to receive a warm welcome. In these essays he has given us a useful and discriminating survey of current thought upon education as it is affected by biological, sociological, and psychological theories. Every essay is in fact complete in itself, though they constitute a fundamentally-connected series, developed as they are from a consideration of the aims of education. Here he wisely abandons the apparent simplicity of Herbart, whose dictum, summing up the one and whole work of education in the concept of morality, is too general to be useful. For Mr. Keatinge education is a definite set of influences which must have relation to the social needs of adults—bodily health, earning a livelihood, right use of leisure, the human, æsthetic, and scientific interests of the individual, &c.—and in order to determine what and how education can meet the call, he considers in some detail the biological factors involved, the relation of æsthetic to education, the place of freedom in education, the curriculum as meeting the needs of an industrial community, &c.

Each of the essays is a model of clear analytical exposition and of constructive suggestion. The busy teacher who cannot keep abreast of educational literature will find much to help and interest him in these papers, marked as they are by objective sincerity and keen sympathy both for the teacher and for the great society to whose service he is called.

An Introduction to Political Philosophy. By H. P. Farrell. (vii+220 pp.) Longmans, Green & Co. 3/6 net.

WHEN students who enter our Training Colleges can afford to spend less time upon the subjects they will ultimately have to teach, it may be possible to include at least an introductory course in the social sciences into the curriculum, and then Mr. Farrell's book will find an important place in those institutions. Although based on a historical plan, it is not a history intended, for example, to rival Sir Frederick Pollock's fascinating little book. Half the volume is given to an exposition of Plato and Aristotle; then we cross a ten-page bridge dealing with the mediæval political thinkers, to Hobbes, Locke, and Rousseau. A short chapter on the analytical school and another on the historical bring the survey to an end. The treatment is throughout simple and clear, and the book fills a gap which must have been felt by W. E. A. lecturers and others. There is a useful bibliography and a good index.

The Mother-Craft Manual. By Mary L. Read. (xx+440 pp.) Harrap. 5s. net.

THIS is a veritable encyclopædia of mother-lore, covering every aspect of the physical, mental, and moral welfare of young children. Marriage itself is discussed in its socio-hygienic aspects, and the young expectant mother will find much useful guidance. Once the baby has come, it is difficult to conceive a contingency which is not covered by the author. Of course, she is often dogmatic where in point of fact much difference of opinion exists, and in these days one smiles to see our boys' toy soldiers put into a list of harmful toys. They are in an anti-social group because they foster callousness towards the value of human life, and give a wholly wrong impression of the meaning of war. Dolls, too, are often "over-realistic, super-refined"! It is impossible even to indicate the overflowing contents of this book, which should find a useful place in many homes and in the libraries of nursery schools.

Memorandum on the Educational Principles upon which should be based all Future School Reform. (28 pp.) Child Study Society, London. 3d. net.

IN spite of the note of finality in the title of this interesting pamphlet, it is a valuable document as indicating lines of research which have in recent years furnished so much valuable pedagogic material. Readers will perhaps complain that the principles are a little nebulous, and that the point of view is too psychological and individualistic. The science of childhood is still too young to be rich in very definite results, and new facts and new interpretations may surely affect principles, always excepting the one great principle that reform should follow inquiry and research.

We hope that the document will have a wide circulation, and if it needs reprinting, may we respectfully suggest the elision of the word *all* from the title.

BOOKS RECEIVED.

The Scientific Measurements of Class Room Products. By J. C. Chapman and G. P. Rush. (viii+191 pp.) Silver Burdett & Co. (N. York).

[AN exceedingly useful summary of norms of progress as so far determined in the main by American investigators. It deals with Arithmetic, Writing, Reading, Spelling, Composition, and Drawing, and contains some critical chapters on the whole problem. A more extended notice is reserved for a later issue.]

Stories for the History Hour. From Augustus to Rolf. By Maurice Niemeyer. G. G. Harrap & Co. (253 pp.) 3/- net.

[A series of stories charmingly told. Their perusal leads one to envy the Standard II children for whom they formed the basis of three terms work. Teachers who want to know how biography can be used effectively as a means of teaching history to young people should read this volume.]

Graduated French Dictation. By S. H. Moore. (ix+168 pp.) University Press, Cambridge. 2/6 net.

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THE APPLICATION OF THE BINET-SIMON SCALE TO NORMAL ENGLISH CHILDREN.

By R. C. MOORE, M.A., M.Sc.

I Introduction.—Aim and Nature of the present Investigation.

THE Binet-Simon Scale is one which attempts to measure intelligence. It was recognized even by Binet himself to be but rough and incomplete, and he asked for others to try it and criticize.

The scale was based on the capability of normal French children to pass certain tests at certain ages.

Now the writer wished to ascertain if these tests were suitable, in their present form, method of application and order, for normal English children. It must be remembered that the scale cannot be successfully used for the abnormal child until the norms for each age have been obtained. Hence the present research was undertaken:—

- (1) To ascertain if the Binet-Simon questions were suitable for English children.
- (2) To find out whether the series was correctly graded for English children.
- (3) To obtain norms for English children.

Some work has already been done in this direction, e.g., Winch¹ carried out experiments on London children; Rogers and McIntyre² worked with 217 Scotch children; Johnston³ and also Taylor⁴ conducted experiments in Sheffield schools on groups of 218 and 103 children respectively.

The present investigation was carried out in an elementary school in a suburb of Liverpool. The children mostly came from working-class homes.

The following table shows the number of children tested at each age:—

TABLE I.

Age.	Boys.	Girls.	Totals.
4 years	10	16	26
5 "	39	32	71
6 "	50	37	87
7 "	31	33	64
8 "	37	34	71
9 "	34	32	66
10 "	16	18	34
11 "	11	17	28
12 "	12	11	23
13 "	12	9	21
Total ...	252	239	491

Great pains were taken to ensure the conditions of testing being as perfect as possible.

(a) The room used for the investigation was away from the rest of the school and quite free from distracting noises and sights. Only the examiner and the child were present.

(b) The investigator aimed at making the child feel thoroughly at home and quite natural—hence a few minutes conversation about things

¹Winch, *Child Study*, 1913, 113.

²Rogers and McIntyre, *Brit. J. of Psych.*, 1914, 265.

³Johnston, *This Journal*, 1911, 24.

⁴Taylor, *This Journal*, 1916, 256.

interesting to the child was the introduction given to the tests. When the child was feeling quite comfortable a game was suggested, e.g., the picture test. The examiner's manner was pleasant and encouraging. Praise was given whenever possible, and a child was never told that it was wrong.

(c) The Binet-Simon Scale of 1911 was used, with the following modifications:—

- (1) In tests IV 2, V 4, VI 4, the coins used were pennies.
- (2) In test VII 4 three pennies and three halfpennies were used.
- (3) In test IX 1 the child had the following coins to select from:—
A sovereign, half-sovereign, crown, half-crown, florin, shilling, sixpence, threepenny piece, penny, halfpenny, and in addition six pennies and five halfpennies. The value of the article sold was twopence, while the coin used for purchasing purposes was one shilling.
- (4) In test IX 3 the coins to be named were a sovereign, half-sovereign, crown, half-crown, florin, shilling, sixpence, threepenny piece, penny, and halfpenny.
- (5) In tests X 5 and XII 2 the word "London" was used instead of "Paris."
- (6) In test XV 2 three rhymes had to be supplied to the word "money."

(d) The questions were asked exactly as directed by Binet, and all his conditions were carried out for each test.

(e) The children were tested in order of age, commencing with the youngest. This was done because the younger the child the less able was he to tell other children (as yet unexamined) about the tests. Indeed it was found that there was practically no tendency to talk about the tests.

II The Results and their Analysis.

THE DISTRIBUTION OF MENTAL WITH PHYSICAL AGE.

This distribution is shown in Figures 1 and 2 and in Table II. If we consider all the children together and adopt Goddard's classification of *normal*¹, *gifted*, and *backward* children, we find that 83·9% of the children are normal, 9·4% are gifted, while 6·7% are retarded. Taylor² found 80·5% of her subjects to be normal, while Rogers and McIntyre³ found 75·5% of the children tested to be normal.

The dotted line in Figure 1 represents the graph that would have been obtained if the average mental age was always identical with the average physical age. The continuous irregular line represents the actual results in graphical form. It is seen that in the younger children the mental age is, on the average, in advance of the physical, while for the elder children the reverse is the case. The average mental and physical ages are coincident between the ages of seven and eight years. The average mental age falls more and more short of the physical age with the increase in age of the children. The number of children at the various mental ages for each physical age is shown in Table II. The percentage of children at age, advanced or retarded for each physical age, is given in Figure 2.

¹By *normal* children Goddard means those who are "at age" or one year above or below, *gifted* children are those who are two or more years in advance of their age, while *backward* children are two or more years behind their physical age. *The Pedagogical Seminary*, 1911, 236-237.

²This *Journal*, 1916, 259.

³*Brit. J. Psych.*, 1914, 273.

FIGURE 1. The Relation between Average Mental Age and Average Physical Age.

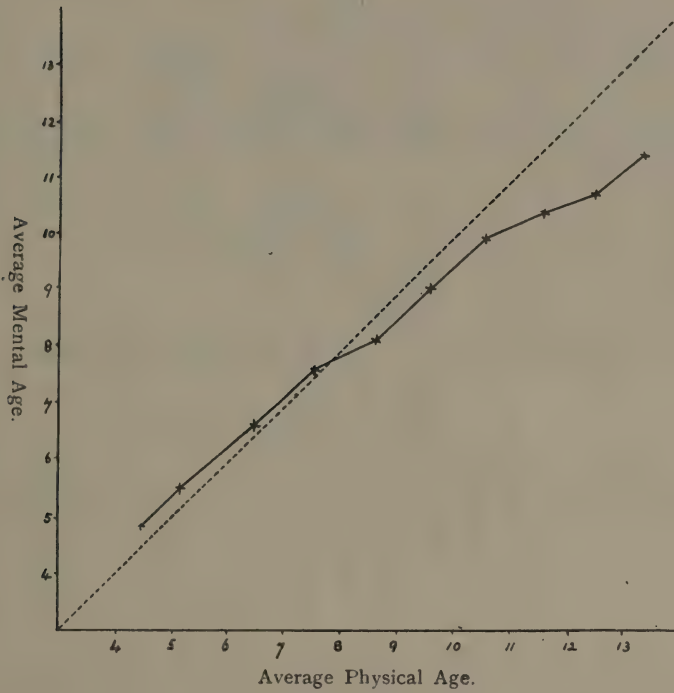
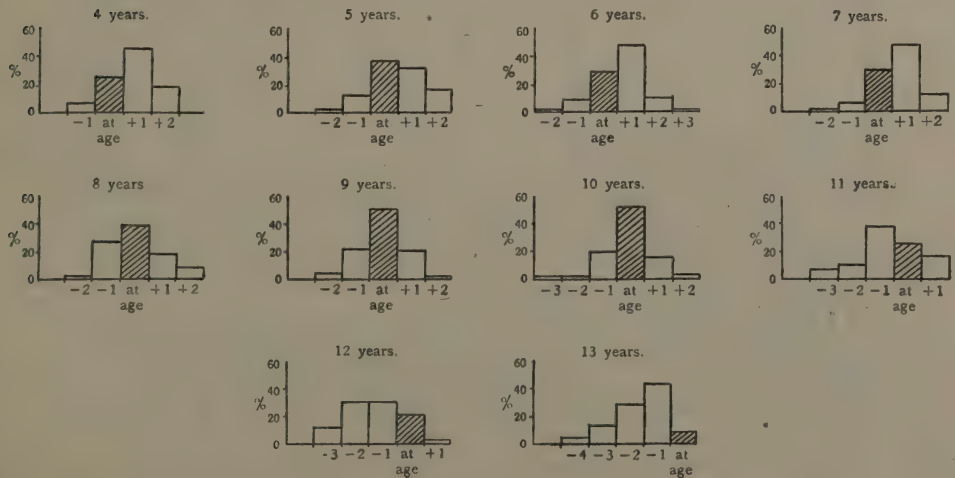


FIGURE 2. Percentage of Children at Age, Advanced and Retarded for each Physical Age Tested.



The above distribution in the present case might be due to the elder children being of an inferior mental calibre to the younger. But, as a similar result has been obtained by many other investigators, who have worked with other groups of children of different nationalities, the cause is more likely to be found in the tests themselves.

The tests may cause this distribution by—

(1) Those for the younger children being relatively easier for the various physical ages than are the tests for the older children. This is so, to a certain extent, as is shown in Table V.

(2) The fact that the mental age of a child is not only computed from his successes in the tests for his own age but also from the number of higher tests he passes. In the younger ages there are far more higher tests which it is possible to pass than is the case with the elder children. Hence the younger children have a far greater chance of scoring "advanced" credits¹. This is shown in Table III.

TABLE II.
Distribution of Mental with Physical Age.

Phys. Age.	Mental Age.															Total	At Age %
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15		
4	—	—	2	7	12	5	—	—	—	—	—	—	—	—	—	26	26.9
5	—	—	1	8	26	23	13	—	—	—	—	—	—	—	—	71	36.6
6	—	—	—	1	8	26	42	9	1	—	—	—	—	—	—	87	29.9
7	—	—	—	—	1	4	20	31	8	—	—	—	—	—	—	64	31.3
8	—	—	—	—	—	2	20	28	14	7	—	—	—	—	—	71	39.4
9	—	—	—	—	—	—	1	15	34	14	2	—	—	—	—	66	51.5
10	—	—	—	—	—	—	1	1	7	18	6	1	—	—	—	34	52.9
11	—	—	—	—	—	—	—	2	3	11	7	5	—	—	—	28	25.0
12	—	—	—	—	—	—	—	—	3	7	7	5	1	—	—	23	21.7
13	—	—	—	—	—	—	—	—	1	3	6	9	2	—	—	21	9.5
Totals	—	—	3	16	47	60	97	86	71	60	28	20	3	—	—	491	

TABLE III.

Physical Age.	Number of Higher Tests.	Physical Age.	Number of Higher Tests.
3 years.	49	10 years.	15
4 "	45	11 "	15
5 "	40	12 "	10
6 "	35	13 "	10
7 "	30	14 "	10
8 "	25	15 "	5
9 "	20	Adult.	0

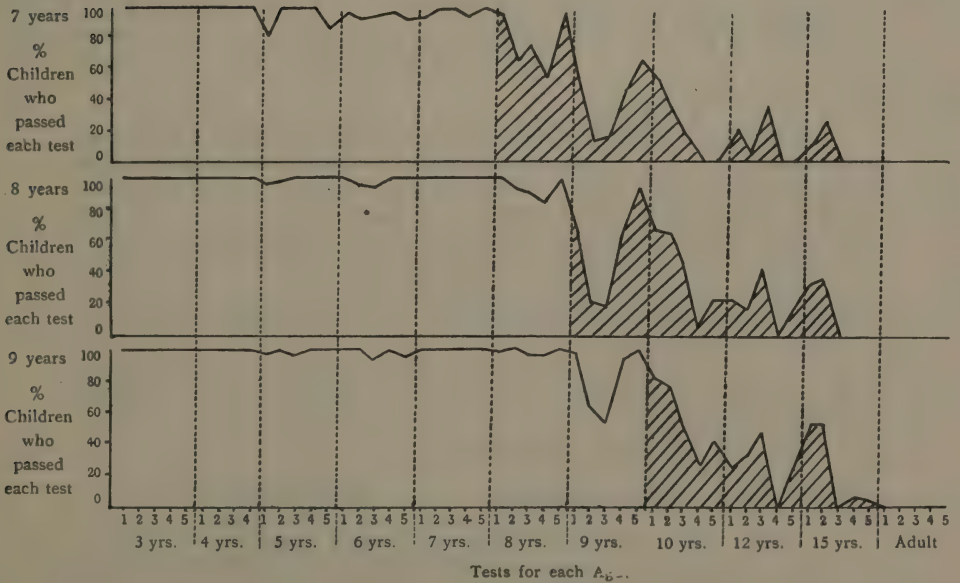
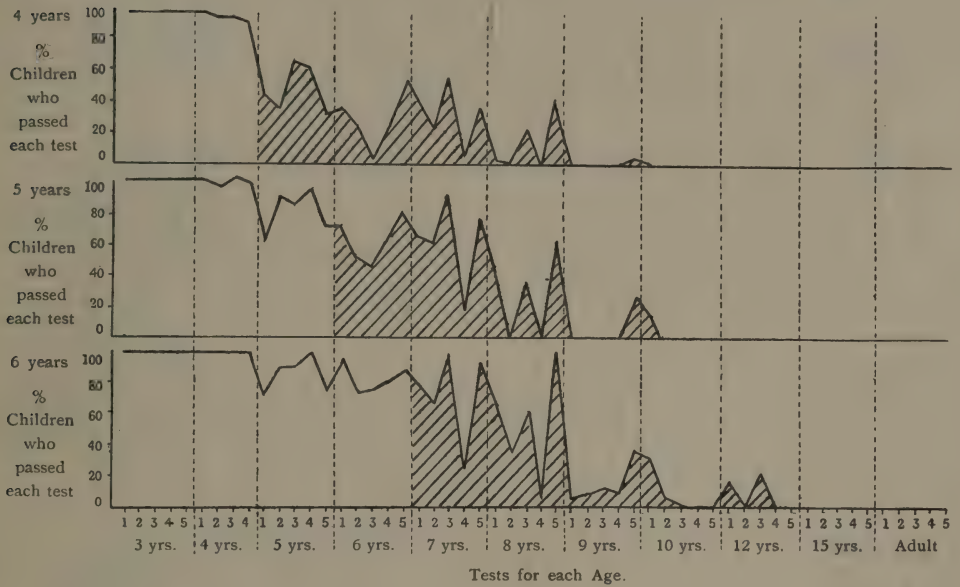
Figure 3 shows the individual tests upon which the credits are scored, and also the value of the higher tests for each age in furnishing advanced credits. The shaded portion of the figure represents the successes in passing the higher tests.

Thus it is seen that it is *not possible* to obtain corresponding amounts of advanced credits at different ages. Hence it must be remembered that although the *rule* for calculating mental ages is the same for all children (whatever their physical ages) yet the resulting ages are not directly comparable.

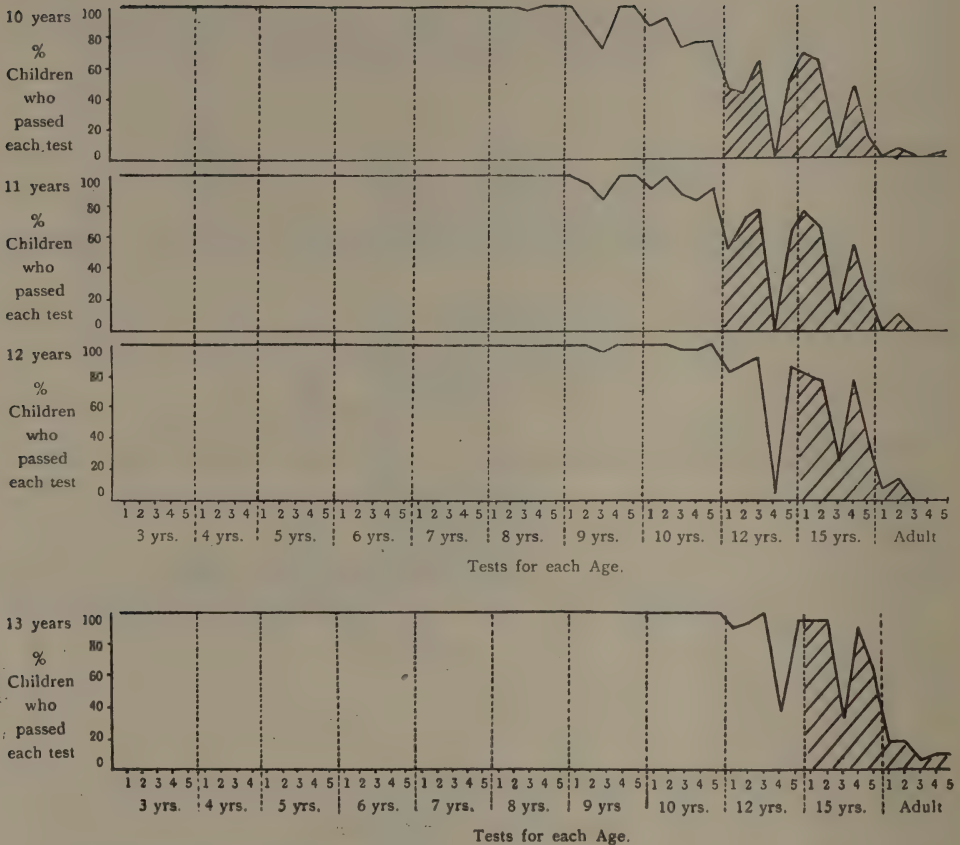
¹This matter is also emphasized by Taylor.

"Further Data towards the Study of the Binet-Simon Scale." *This Journal*, 1916, 257.

FIGURE 3. Percentage of Children at each Age who passed the various Tests.



[OVER



The Mental Quotient.

The mental retardation or advancement of a child has usually been represented by the difference between the mental and physical ages. But the significance of this difference depends largely on the physical age of the subject; e.g., a mental retardation of three years in a six years old child is much more significant than a three years retardation in a fifteen years old subject. Therefore it is not fair to compare the abilities of children of various ages by simply stating the difference between their mental and physical age. In every case the physical age ought to be also stated.

It has been suggested that the ratio of the mental to the physical age should be calculated. This latter quantity has been called the "Mental Quotient."¹

It can be calculated by the following formula:—

$$\text{Mental Quotient} = \frac{\text{Mental Age.}}{\text{Physical Age.}}$$

In the case of normal children the Mental Quotient will equal 1. With advanced or retarded children it will be greater or less than 1 respectively. The greater the advancement the greater the ratio, while the more backward the child is, the smaller the ratio.

¹Stern, W. *The Psychological Methods of Testing Intelligence*. Published Warwick & York, Baltimore, 1914, pp. 41, 42, and 77-80.

The results of applying this method to the present data is shown in Table IV.

TABLE IV.
AVERAGE MENTAL QUOTIENT CORRESPONDING TO
EACH PHYSICAL AGE.

Physical Age.	Average Mental Quotient.	Physical Age.	Average Mental Quotient.
4 years.	1.09	9 years.	0.95
5 "	1.08	10 "	0.94
6 "	1.03	11 "	0.90
7 "	1.01	12 "	0.86
8 "	0.94	13 "	0.86

The steady fall in the value of the Mental Quotient in the above table is due to the reasons stated in the section on "The Distribution of Mental with Physical Age."

THE NEED FOR MORE DETAILED INFORMATION ABOUT A CHILD'S MENTAL POWERS THAN IS GIVEN BY HIS MENTAL AGE.

Binet's tests, when carried out on a subject, give a single result, viz., the child's mental age. By their means we decide whether a child is or is not normal, and also the degree of super- or sub-normality in terms of mental years. The tests do not show us how the various mental processes of a child are developed in relation to each other or to those of the normal child of the same age.

If two subjects are found to have the same mental ages they may yet differ greatly in their mental abilities. This is due to the fact that it is possible to have very many different arrangements of success and failure in the individual tests which yet give the same mental age; e.g., one child, of mental age ten years, may pass all the tests for age ten but only one or two higher tests. Another child, of the same mental age, may only pass all the tests for age eight but sufficient higher tests scattered through the ages nine, ten, twelve, and fifteen to bring his mental age up to ten years. These two children are of the same mental age, but yet they will have many mental differences.

If the test series were composed of groups of tests of each of the more important mental processes, then it could be determined how a child passed in each of these groups separately. Then not only could the mental age of a child be determined from the results of the whole series, but knowledge could be obtained from the subject's successes in the various groups as to the state of development of the various mental processes. This analysis of the total mentality would be of very great value in helping to decide the educational treatment of the child and also its future career.

"The Point Scale for Measuring Mental Ability," developed by Yerkes, Bridges, and Hardwick¹, is an attempt to build up such a scale.

Rossollimo², in his work on "Mental Profiles," has shown how the results from such a scale can be graphically represented, so that the analysis of the child's intelligence, as derived from test results, can be seen at a glance. Burt³ has used a graphical method in connexion with "Special Educational Abilities."

¹*A Point Scale for Measuring Mental Ability*, by Yerkes, Bridges, and Hardwick. Published by Warwick & York, Baltimore, 1915.

²*This Journal*, 1912, 211.

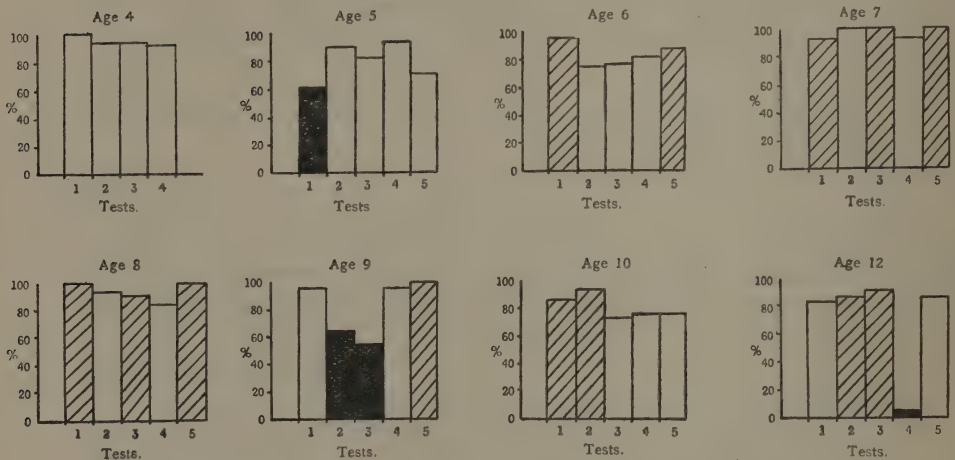
³Burt: *The Distribution and Relations of Educational Abilities*, Figure 9. P. S. King & Son, Ltd.

THE RELATIVE EQUI-DIFFICULTY OF THE TESTS IN EACH AGE GROUP.

The tests, within a given age group, should be such that a normal child of that age could pass them, and yet they should be too difficult for younger normal children. Since, owing to individual variations in the mental ability of normal children, we cannot get a test which can be passed by *every* normal child of a certain age, we have to consider a criterion as to the percentage of children who have to pass a test in order for it to be considered normal for a particular age. This criterion varies slightly with different writers, e.g., Goddard¹ 75%, McIntyre and Rogers² 70%. In this research a test has been considered suitable for a particular age when 70% of the children of that age pass it successfully.

In Figure 4 is shown graphically the percentage of children of each age who successfully pass each of the tests for that age. Thus the

FIGURE 4. Percentage of the Subjects who passed the Tests corresponding to their own Ages.



separate test constituents of each age group can be compared with one another. The columns in the diagram which are unshaded represent tests which are suitable for the age in question.

The tests represented by black columns are at once seen to be too hard, because less than 70% of the children of that age passed them. Tests represented by shaded columns are too easy for a given age, as 70% or more of the children of a younger age passed them successfully.

From Figure 4 it will be seen that for nearly every age there are some tests either too easy or too difficult. Age 6 group of tests contains two tests, age 7 group three tests, age 8 group three tests, age 9 group one test, aged 10 group two tests, and age 12 group two tests, which are too easy. Age 5 group contains one test which is too difficult, while age 9 group contains two, and age 12 group one such test.

It is thus seen that the tests comprising a given age group are by no means of a similar standard of difficulty to the normal child. Yet

¹The Pedagogical Seminary, Vol. XVIII, 240.

²Brit. J. Psych., 1914, 283

they ought to be, for each test is considered of the same value as any other test in estimating the mental age of a child.

From the same data, the relative difficulty of each group of tests, as a whole, can be compared with the relative difficulty of any other group of tests. This can be done by averaging the percentages of children who pass each of the tests for their own age. The comparison of these average percentages for the various ages shows us the relative difficulty of the different age groups of tests. The requisite data is given in Table V.

TABLE V.

AVERAGE PERCENTAGE OF NORMAL CHILDREN OF A GIVEN AGE WHO PASS THE TESTS FOR THEIR OWN AGE.

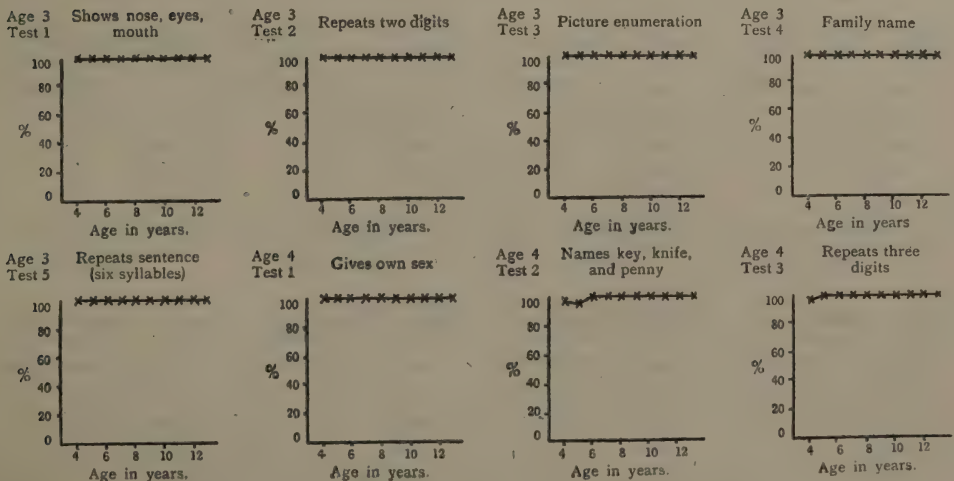
Age.	Average percentage of normal children of a given age who pass the tests for their own age.	Age.	Average percentage of normal children of a given age who pass the tests for their own age.
4 years.	96.2	8 years.	94.1
5 "	79.9	9 "	81.2
6 "	83.3	10 "	78.8
7 "	97.5	12 "	70.4

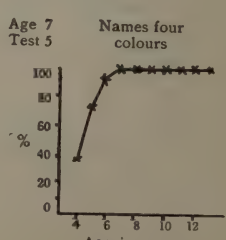
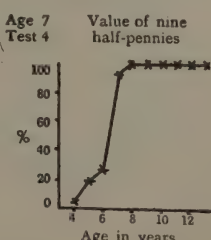
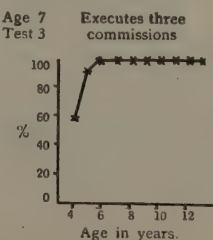
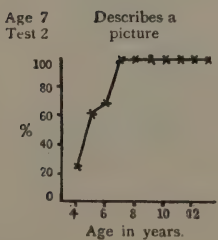
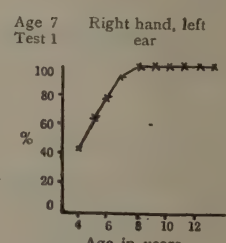
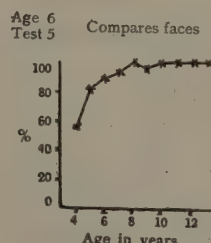
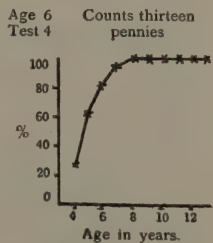
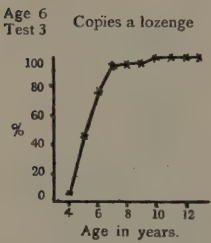
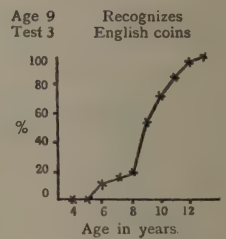
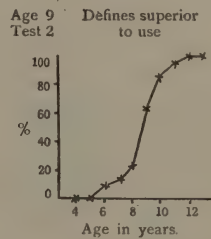
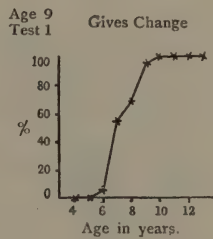
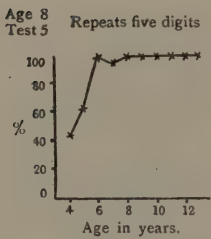
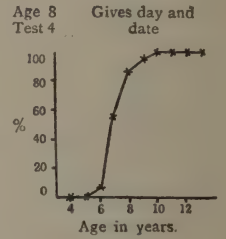
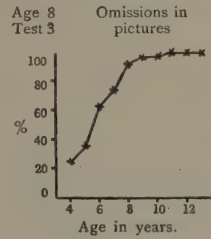
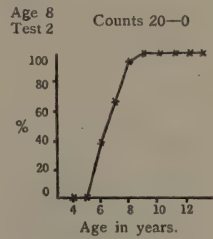
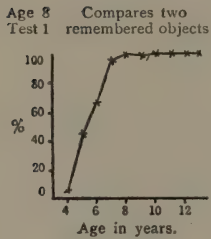
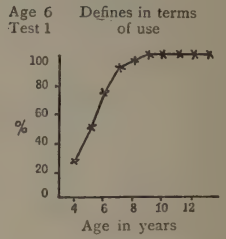
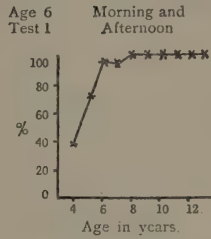
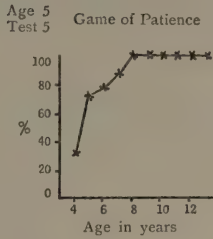
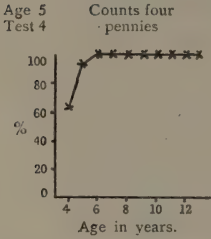
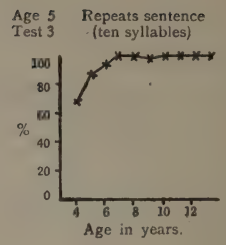
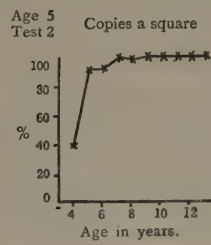
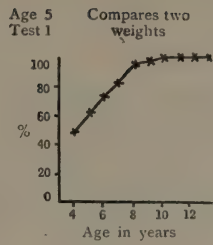
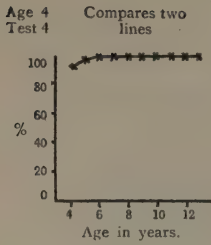
Thus the groups of tests for ages 12, 10, and 5 appear the most difficult, while the tests for ages 4, 7, and 8 appear the easiest. The greatest range in difficulty, of the tests comprising an age group, is experienced in the test group for age 12. The least range in difficulty is found in the group for age 7.

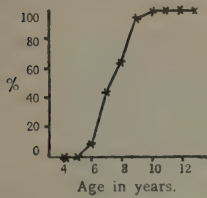
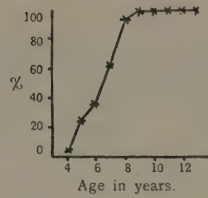
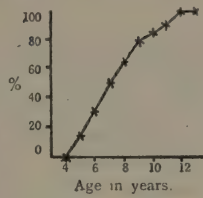
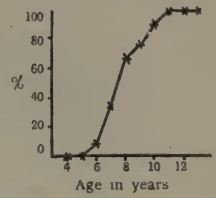
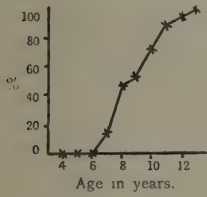
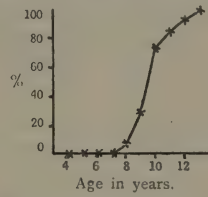
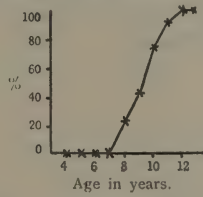
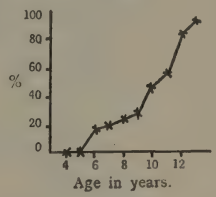
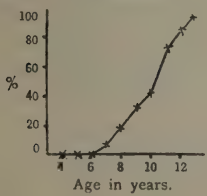
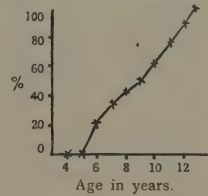
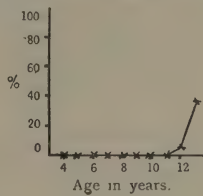
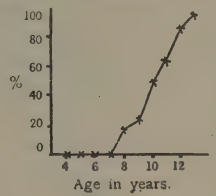
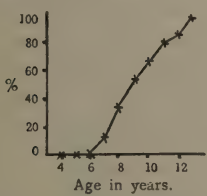
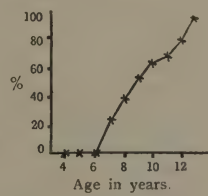
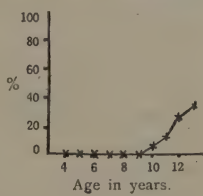
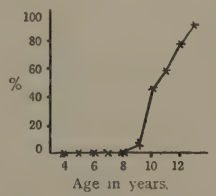
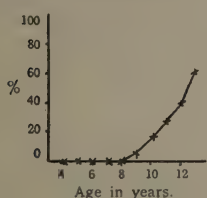
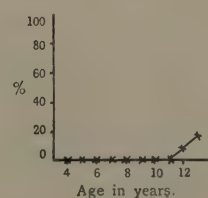
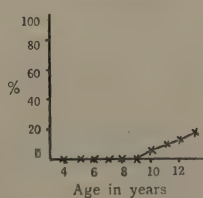
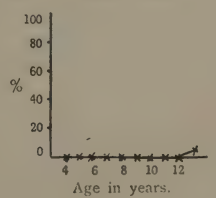
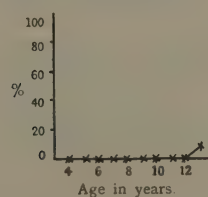
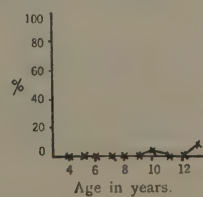
THE VARIATION OF TEST RESULTS WITH ADVANCING AGE.

All the tests were carried out on all the children tested. The results, expressed in percentages, for each age and for each test, are shown graphically in Figure 5.

FIGURE 5. The Percentage of the Subjects who pass each of the Tests at Different Ages,





Age 9
Test 4 Enumerates the monthsAge 9
Test 5 Easy questionsAge 10
Test 1 Arranges five weightsAge 10
Test 2 Memory drawingAge 10
Test 3 Absurd statementsAge 10
Test 4 Difficult questionsAge 10
Test 5 Three words in two sentencesAge 12
Test 1 Resists suggestion-linesAge 12
Test 2 Three words in one sentenceAge 12
Test 3 More than sixty words in three minutesAge 12
Test 4 Defines abstract termsAge 12
Test 5 Sense of mixed sentencesAge 15
Test 1 Repeats seven digitsAge 15
Test 2 Gives three rhymesAge 15
Test 3 Repeats sentences (twenty-six syllables)Age 15
Test 4 Interprets picturesAge 15
Test 5 Solves problems from factsAdult
Test 1 Paper cutting testAdult
Test 2 Rearranges triangleAdult
Test 3 Difference between abstract termsAdult
Test 4 Question about the PresidentAdult
Test 5 The Thought of Hervieu

From the graphs it is very easy to see how ability to pass any particular test alters with age. The variation in ability, with advancing age, to pass a test differs considerably for different tests. In some tests, the ability to pass them seems to suddenly appear and reach maturity in a few years—e.g., Test 3, age 6, "Copies a lozenge." The ability to pass this test is very slight at the age of four years. It rises suddenly and is very nearly fully developed at the age of seven years. Other tests of this type are:—Test 1, age 8, Compares two remembered objects; Test 2, age 8, Counts 20-0; Test 4, age 8, Gives day and date; Test 1, age 9, Gives change. In another class of tests, the ability to pass them only slowly develops with advancing age—e.g., Test 1, age 10, Arranges five weights; Test 1, age 12, Resists suggestion-lines.

The rate at which the ability to pass a given test alters with the age of a child is very important. The standard as to whether a test is appropriate to a given age level or not, is that at least 70% of the normal children of the given age are able to pass it. But this by itself is not sufficient. For if the ability to pass the test shows little variation from the 70% standard over several different ages, the test is not of much use as a criterion as to whether a subject has not reached, or passed, one of these mental ages. On the other hand, if at the age of y years a large proportion of the subjects can pass a test successfully, which at the age of $(y-1)$ years only a small proportion of the subjects can pass, then the test is a suitable test for the age of y years.¹

The following are examples of tests which are not very definite criteria of a particular age:—

Test 1.—Age 15. Repeats seven digits.

At 9 years of age	51.5%	of subjects pass.
At 10 " "	64.7%	" "
At 11 " "	79.6%	" "
At 12 " "	82.6%	" "

Test 2.—Age 15. Gives three rhymes.

At 9 years of age	52.5%	of subjects pass.
At 10 " "	61.8%	" "
At 11 " "	67.9%	" "
At 12 " "	78.3%	" "

The tests given below show a clearly defined line of demarcation for the age for which they are graded:—

Test 2.—Age 5. Copies a square.

At 4 years of age	39.5%	of subjects pass.
At 5 " "	90.1%	" "

Test 5.—Age 10. Three words in two sentences.

At 9 years of age	41.9%	of subjects pass.
At 10 " "	73.5%	" "
At 11 " "	92.9%	" "

NOTES ON INDIVIDUAL TESTS.

Enumeration, Description and Interpretation of Pictures.

Tests III, 3; VII, 2; XV, 4.

The pictures shown by Binet for these tests do not appear, from the results of the experiments, as being very suitable for children. The

¹ Discussing this point, Stern says, "That test is most useful that shows the most decided advance with age." Stern, *Psychological Methods of Testing Intelligence*, p. 94. Pub. Warwick and York, Baltimore, 1914.

pictures are rather uninteresting and difficult for description or interpretation, especially for the younger children. They do not appeal to the children to any considerable extent. Winch¹ says the pictures are "too adult for young children." This was also found to be the case for the subjects of the present research.

Comparison of Two Lines and Comparison of Two Weights.

Test IV, 4, and Test V, 1.

It is interesting to note the different results from these two tests—both comparisons, one of length, the other of weight. Test IV, 4, required observation, but Test V, 1, needed this and something more. The child had to take a more active part—he had to lift the boxes and discriminate which was the heavier. In every case but one it was found that once the child had grasped the idea of weighing there was no further difficulty. At four years of age the children could estimate which was the heavier box when it was suggested (as it was after all the children had been tested) to them to take the boxes in their hands. The difficulty with the children of four and five years of age, and the reason why children of these ages are not successful with this test, is that they do not grasp the fact that the boxes must be weighed in their hands. At the age of six years 72.4% of the children were successful. Therefore it appears as if this should be considered a test for six-year-old English children.

Definition Tests. Test VI, 2, and Test IX, 2.

"Fork" seems to be a difficult word with which to commence. "Chair" and "table" are much easier for the child to define.

Several children failed at "fork," and were next asked "chair" and "table." They then spontaneously said, "Oh, I can tell you what a fork is now."

Definitions of use were the most frequent up to and including the children of eight years, although five-year-old children gave the following definitions:—"A fork has got three spikes and a handle." "A table is a big square thing with four legs." "A horse has four legs, one head, some teeth, a neck and some hair on it." At nine years of age the children often hesitated before giving a definition. Introspections indicated that the children thought of the definition of use, but felt that it was insufficient and hence sought another.

Compares Faces. Test VI, 5.

The faces were arranged thus:—

- Card I. (1) pretty, (2) ugly.
- Card II. (3) ugly, (4) pretty.
- Card III. (5) pretty, (6) ugly.

At four years of age it was found that the children frequently chose (1) on Card I, then (3) on Card II, and then (5) on Card III.

After the whole series of tests had been carried out, this test was repeated several times, but with the relative position of the pretty and ugly faces altered. It was found that in the case of nearly 40% of the children, aged four years, when a choice of a face had been made in Card I, that the face in the same relative position (either left-hand or right-hand face) was chosen in Card II and Card III. This is an example of the automatic, repetitive tendency of children.

¹ "Child Study," 1914, 4.

Gives Day and Date. Test VIII, 4.

School training enters into this test to a varying extent at different schools. In many schools the children write the date at the head of all their exercises. At other schools this is not done. The former course is followed at the school attended by the children tested.

Enumeration of Digits. Test VIII, 5; Test XV, 1.

A certain amount of improvement with practice was observed in the carrying out of these tests—e.g., with the numbers

3, 8, 5, 7, 1; 9, 2, 7, 3, 6; 5, 1, 8, 3, 9.

In many cases when a mistake was made in the series 3, 8, 5, 7, 1, the second series, 9, 2, 7, 3, 6, would be said correctly but in a hesitating manner; whilst the third series, 5, 1, 8, 3, 9, would be said quickly and with confidence.

Recognizes English Coins. Test IX, 3.

The threepenny piece and the sixpence were most frequently confused.

Enumeration of the Months. Test IX, 4.

In the majority of cases the names of the months were laboriously said by children up to nine years of age, but from this age onwards they were said rapidly and with confidence.

Easy Questions. Test IX, 5.

Question No. 1 ("If you were going away and missed your train, what would you do?") proved to be much the easiest of the three. This, however, might be due to local circumstances. All the children lived within a few miles of Liverpool. They frequently went to Liverpool by train with their parents. There was a ten-minutes service of trains to Liverpool. Hence the missing of a train was a matter which often came within the experience of every child.

Question No. 2 ("If one of the boys should hit you without meaning to, what would you do about it?") This was the most difficult question of the three.

Question No. 3 ("If you broke something belonging to someone else, what would you do about it?") appeared not nearly so easy as the first question, but much easier than the second.

Arranges five Weights. (Boxes weighing 15, 12, 9, 6, 3 gms. respectively.) Test X, 1.

The six-year-old children as a rule never tested all the weights. In many cases they took any two weights at random, and tested which was the heavier. They then arranged these two weights accordingly. Then another two weights were often taken, and tested which was the heavier. They were then put down. Thus, one such arrangement was—

9 grms., 3 grms.; 15 grms., 6 grms.; 12 grms.

The box weighing 12 grms. being left over was just put at the end. Another arrangement was—

15 grms., 6 grms.; 12 grms., 3 grms.; 9 grms.

Several six-year-old children commenced as above, e.g., 12 grms., 9 grms. Then from the remaining boxes they selected the heaviest, then the next heaviest, and then the last, thus obtaining the arrangement—

12 grms., 9 grms.; 15 grms., 6 grms., 3 grms.

One child, after arranging four of the weights as follows—12 grms., 9 grms., 15 grms., 6 grms., said of the 3 grms., "It doesn't weigh anything." Another child, after he had arranged the 15 grms., 12 grms., and 9 grms., correctly said that neither the 6 grms. nor the 3 grms. weighed anything.

TABLE VI.

SUGGESTED REARRANGEMENT OF SERIAL ORDER OF TESTS
ON THE RESULTS OF ANALYSIS OF DATA.

Test Year.	Tests.	Suggested Alterations.
3 years.	Shows nose, eyes, and mouth. Repeats two digits. Picture enumeration. Family name. Repeats sentences (six syllables).	
4 years.	Gives own sex. Names key, knife, and penny. Repeats three digits. Compares two lines.	R R R R
5 years.	Compares two weights. Copies a square. Repeats sentences (ten syllables). Counts four pennies. Game of Patience.	*6 R R R R
6 years.	Morning and Afternoon. Defines in terms of use. Copies a lozenge. Counts thirteen pennies. Compares faces.	*5 R R R *5
7 years.	Right hand, left ear. Describes a picture. Executes three commissions. Value of nine half-pennies (three single, three double). Names four colours.	*6 R *5 R *5
8 years.	Compares two remembered objects. Counts 20—0. Indicates omissions in pictures. Gives day and date. Repeats five digits.	*7 R *7 R *6
9 years.	Gives change. Defines superior to use. Recognizes English coins. Enumerates the months. Easy questions.	R *10 *10 R *8
10 years.	Arranges five weights. Memory drawing. Absurd statements. Difficult questions. Three words in sentences—two ideas.	*9 *9 R R R
12 years.	Resists suggestion (lines). Three words in sentence—one idea. More than sixty words in three minutes. Defines abstract terms. Sense of mixed sentences.	R *11 *11 *? R
15 years.	Repeats seven digits. Gives three rhymes. Repeats sentences (twenty-six syllables). Interprets pictures. Solves problems from facts.	*11 *12 *? *12 *14

With seven-year-old children and upwards, the number of children who arranged the five weights correctly rapidly increased.

The most frequent cause of failure in this test of children, aged five, six, and seven years, was inability to grasp the method, i.e., to know that they had to take the boxes up and weigh them in their hands. During these years most of the children who failed simply selected and arranged the boxes by inspection. Older children usually used the right method. The failures, with them, were almost all due to lack of power to discriminate between the weights, e.g.:

12 grms., 15 grms., 9 grms., 6 grms., 3 grms.; or
15 grms., 12 grms., 6 grms., 9 grms., 3 grms.; or
15 grms., 12 grms., 9 grms., 3 grms., 6 grms.

Absurd Statements, Test X, 3, and *Difficult Questions*, Test X, 4.

The children aged eight and nine years found the wording of these tests difficult. When all the tests had been carried out on the subjects, these two tests were tried again, with more simple wording, on the eight and nine-year-old children. Considerably more children succeeded in passing the tests with the simpler wording than with the original Binet statements. Hence the appreciation of the various ideas and situations was hindered by the wording of the tests. Children with large vocabularies had thus an advantage over children with smaller ones. Therefore the passing of these two tests depends partly on the cultural environment of the child.

III. Conclusions.

1. From a general standpoint the tests seem suitable for English children, although in a number of particulars they require modifying or extending.

2. The data show that for the children examined certain tests are not suitable for the age in which they are placed. Hence it appears necessary to adjust the serial order of these tests. The suggested alterations are shown in Table VI. In this table "R" represents a test suitable for the age in which it occurs. If the test is not suitable for its age group this fact is shown by an asterisk and a number representing the age for which it seems most suitable. The results show that twenty-two tests are not placed in their right age groups. Five tests require placing higher and seventeen lower in the scale.

3. There is great need for the provision of tests suitable for children aged eleven, thirteen, and fourteen years.

4. In several tests the child is asked for one or two answers, e.g., "Are you a little boy or a little girl?" "Is it morning or afternoon?" "Which is the heavier of these two weights?" In such tests a correct answer due to knowledge cannot be distinguished from a correct answer due to chance guessing.¹

Again, the system of giving only one mark for passing a test allows no distinction between a child who just comes up to the required standard and one who greatly surpasses it; e.g., in Test XII, 3, "More than sixty words in three minutes," the child who gives sixty-one words and the child who gives one hundred and fifty words get exactly the same credit. Then, too, the child who just misses passing a test and one who fails absolutely are penalized to the same extent.

Tests which did not require alternative answers, and in which credit was given for the *degree* of ability shown, would avoid both the above disadvantages.

¹ This matter is put very clearly by Burt in *The Measurement of Intelligence by the Binet Tests*. *Eugenics Review*, 1914, p. 150.

THE CHILD AND "THE THINGS THAT ARE NOT SEEN."

A paper read before the Bangor Summer Meeting of the Uplands Association,
by Miss M. MORTON, M.A.,

Lecturer in Education, Bingley Training College,
13th August, 1917.

IT is a comfortable thought for me that I have good precedent for standing before you in this place and saying "I put these questions, I raise these points. I do not know the answers." That is my position. I am glad also to think that I am addressing people who will not be led astray by me. It does not matter how wrong I am, how much I may be influenced in my thought by the limitations of my own nature or experience. The exposing of my dimness can only make your light, if you have it, shine more clearly. I have no claim to speak on the subject of religion except a personal experience of failure, and a firm conviction that the issue is fundamental for the children. It may be they will come through however wrongly handled in the matter, but with grievous loss and waste, not only of happiness but of power to live their lives to the full. "*Sub specie æternitatis*," is the only range of vision any teacher can be content to adopt.

The problem of Religious Education has brought itself up many times at our meetings this fortnight, as it was bound to do being fundamental. It is perhaps also our hardest problem, immensely varied by the varying conditions in which it has to be worked out, immensely complicated by artificial as well as inherent difficulties. And yet like all fundamental things, it can show itself extremely simple. Given certain conditions it probably is quite simple, it solves itself like a natural growth.

As in all questions of education there are two stages of the problem to be thought out. First, what is the true way, the ideal given favourable conditions? And that question can only be really answered by experiment in particular cases. Then, secondly, having attained some clear ideas of the ideal way in accordance with truth and child nature, how is this to be adapted to our unideal conditions—children from slum homes who have not had the fundamental human experience on which a religion of love can be built up, and teachers who lack full-grown experience of spiritual things and can be but blind leaders of the blind? Nor can we ignore the paralysing distrust and prejudice and narrowness that brood over religious teaching in schools.

For many people, doubtless, the first stage of the problem seems simple, but my difficulty begins there, and in order to deal with it I must disregard actual conditions and postulate a child with a happy home and a teacher who at least seeks and cares for the unseen, and who is free to follow the light that is in him—at least as free as in respect of the other subjects of the curriculum.

It is the particular question of religious teaching in the Elementary Council Schools which specially interests me, but it is not my aim in this paper to deal directly with this thorny question. I wish rather to raise a few questions bearing on the preliminary problem of the child's

relation to the unseen, and to ask in what ways he does naturally learn to enter in.

The main point where I think the method of religious teaching goes wrong is this. It seems to be taken for granted that in religion one must dogmatize, that here at any rate there can be no question of the child's discovering for himself. My contention is, that here above all, the child must discover for himself, that here if anywhere dogmatic teaching is useless, and that personal experience is the only possible basis of knowledge, and means of growing in knowledge and power. I do not mean that the child should be left without help or guidance, but that we must recognize that religious education is in no way outside the familiar and central problem in all education, the adjustment of authority and freedom, the limits of the teacher's right to dominate, the impossibility of transferring knowledge by any simple process. It is extraordinary that we should see so clearly the mistake of thrusting upon children undigested and unmeaning facts in other subjects, and yet never think of encouraging the child to make his own way in this subject where there are really so many more arguments for the wisdom of refraining from the use of empty words.

I should like first to consider some of these reasons and then to attempt to think out how the general principle could be applied in religious education and what results might be expected. The principle is, that the child truly learns only through his own experience, that he must himself reach out and act and seek, and make his own discoveries, using indeed the stored knowledge of the race, but preserving the attitude of the explorer. Any teaching and learning of the child's concerning the unseen should therefore start from his own experience and needs, and aim at interpreting or fulfilling these. What warrant have we for this view? Jesus said, "Knock and it shall be opened." "Seek and ye shall find." "To him that hath shall be given." Teachers need to imitate the reserve, the patient waiting of the Great Teacher. It is there in the Bible very plain. It is here now rediscovered and governing modern methods of teaching in other subjects. Yet still in religious education authority reigns supreme.

And yet for another reason one would have thought dogmatism here especially out of place, because we do now at length acknowledge that we are all but seekers, that we cannot answer many of the child's first questions, that when we think we know the true answer another man as good as we denies our truth. It is extraordinary how, in the face of facts, this narrow and intolerant dogmatism can have survived so long among intelligent men and women. We admit at length some men's right to doubt what we believe, but we will not let the children know this. We prefer to pare and pare till we reach some core of teaching which we think all will agree to, which we can safely dogmatize about and require children to learn and reproduce. But we are afraid to think, and feel, and follow out our thoughts, or let the children do so.

I think the first necessity, if we are to bring life into the work, is to drop the static view of truth, to rub out the line we have tried to draw round revealed truth and to summon the smallest child and the dullest teacher to the quest.

Since we know that truth is infinite and dazzling, and we can only see through our separate glasses darkly, we cannot see alike, we cannot

see for others. It must be individual experience, it must be various and seem different, it must be dim and dark in places. Of course we can help one another, and should be able to help the children by telling what we see, by fitting our visions together, by studying together the records of the visions of all the seers, by listening to the story of the One Man who claimed to know God so utterly as to be one with God, by trusting to the guidance of the Spirit of Truth. If this habit of seeking and of sharing in a quest is not formed early, how hard it is to talk naturally about the unseen. The subject is taboo, we fear to shock, or hurt, or upset one another, or we shrink from laying bare our own poverty.

It always seems to me that Roman Catholics are in a different position with regard to teaching. They are, or seem to be, convinced, and agreed, and alive. They have a religious home containing much that is childlike, and interesting, and providing simple real experience. The child can play happily in that home, and as he grows, perhaps new and deeper meanings will be revealed to him. Perhaps he will continue to think as a child. At any rate, there is life, and love, and reality for the time being. It is not so in our Council Schools. We have not the right to make a religious home and playground, and keep the child happy there, even if we would. We must rather help each child to find its own way, and teach that the promised land is there for the seeking.

In what ways can the child discover in the sphere of religion? Accepting the principle, how would the teacher proceed, and what developments would he look for in the child?

It is natural, perhaps, to seek in primitive religion guidance as to the substance and method of early religious education. There is undoubtedly a parallelism here in the growth of the child and the race, but I think the resemblances are so broad and so obvious, and the differences so important and so various for individuals, that, at this stage of educational thought, no direct guidance of value is to be found as to suitable matter or method in teaching any subject. But in general it is fortifying to find that the most primitive races have some conception of the unseen. This fact may suggest an answer to a question which might have been raised earlier. Is the young child capable of any conscious relation to the unseen, the spiritual world? I think the answer to the question put in this form is "yes." If I ask—"Is the child before adolescence capable of definite religious feeling, faith, motivation?" perhaps the answer is "normally, no." There are, of course, precocious children, and children who have been precociously stimulated, suggestible children who reach this plane of experience. But, probably, we should not as a rule look for any definite and permanent religious growth before 12 years of age. After all, this conclusion is in line with many people's views about each and every subject. The child is not ready for history as history, or mathematics as mathematics, before that age.

What, then, are the preparatory experiences that are natural, and should be fostered as the antecedents of a definite religious feeling and faith? The further question will be, what kind of teaching or guidance should be given in early adolescence, or whenever the child does begin to seek in earnest? And another question, which happily may now prove unneeded, is this; since the child at present may leave school at 12 years, is it possible to hurry him on and help him to begin his

search earlier? We at present try to teach many things before the child is ready, simply because it is the only chance. To-day I must leave these two latter questions and deal only with the stage of childhood and the general attitude of the teacher.

If all is to start from the child's own experience, what is the more pertinent part of his experience? What parts of the Bible should he study or be told of? What customary teaching should perhaps be omitted?

I think above all it is the spirit of wonder, of joyful adventure, of mystery, of trustfulness, of love, that need to be fostered. It is, I suppose, chiefly the trustful spirit of the little child, the letting go in all confidence, that Christians are bidden practise when they are told to become as little children. I am sure that it is wrong to separate, as we do, religious thinking from other thinking, religious feeling from other feeling, the things that are seen from the things that are not seen. "If a man love not his brother, whom he hath seen, how can he love God whom he hath not seen?" We sometimes take this text to mean that the love of our brother should be a consequence or a test of our love to God, but surely it means that the love of our brother is a necessary step, the way we begin to learn love. And this is true of the education of all feelings, religious or not. We must begin with the near and childlike. We ignore this when we interpret too narrowly such a text as, "Set your affections on things above, not on things of the earth." We must develop our affections by means of the things of the earth, though we must not stop there. The near and transitory delights are necessary as an education in rejoicing, and surely, rejoicing should be a large part of religion. It is better to indulge lawful appetites and desires than to starve them and put nothing in their place. It is foolish to give up anything except for something better, something we feel and believe ourselves to be better. I think, then, some of the customary teaching about "giving up," "self-denial," "taking up the cross," is twisted from its true meaning, and I think in any case it is not for the child. The child is not ready for the notes of resignation, sacrifice, humility, meekness, penitence. It is his business to make the most of this world and of himself, to believe in his own powers, to delight in his own prowess. He will work through till he comes to find for himself that his kingdom is not of this world, till he feels truly home-sick for his heritage. A child very early can discover for himself that "it is more blessed to give than to receive," or at least that giving is a blessed experience. Why anticipate the glorious discovery by telling? "The pious Pestalozzi," we are told, "was filled with measureless remorse when he thought he had given a little child a conception which he might have discovered for himself." Such an attitude may seem exaggerated when we read it in connexion with the Heuristic method in science teaching, but we feel its force in the sphere of religion. More and more we are coming to realize how strangely we underrate the powers and neglect the intuitions of children. Children are by no means materialists. They have the gift of imagination, the spirit of adventure, the power of adaptation, the trustfulness which carry us over to the unseen and the unknown. "To die is a very great adventure," says Peter Pan. That is the very spirit needed.

The child is near the spiritual world, but his nearness is different from the nearness of his elders. Perhaps he has not yet distinguished at all between the material and the spiritual, as he has not yet distinguished

the real and the imaginary. The child must be allowed to play with spiritual things and explore for himself. It may be only the ante-chamber he can enter, but if God is anywhere, He is there too, and that is the child's way in. Why do we always make the child put away his toys and put on a grave face and manner when we would have him think of God? We make God a puzzling interruption, a person who interferes and demands something, who, when he comes, makes people suddenly different, solemn, unnatural. There is some kind of pose, and children resent a pose.

I have not directly answered the question as to how and what the child can discover in these early stages. I think the answer is suggested by the saying, "The Kingdom of Heaven is within you." It is in the region of feeling that the real discoveries will be made.

The child's good feelings are aroused by art, by beauty, by human relationships of various kinds. A child who has felt the joy of a beautiful thing, the exaltation of singing together, the peace of reconciliation or rescue, the love that comes from vivid human relations, the relief of doing right, the joy of service, will never be likely to be content with a merely material world, or life on an animal plane.

Then most children have troubled, puzzling feelings. The I—feeling for instance, or the sudden drop of depression of the nervous child, bewilderment, apprehension, loneliness in the dark, the sense of something there and menacing—all the various manifestations of the instincts of fear and negative self-feeling. Such experiences widen the child's acquaintance with the unseen, and also make him desire some guidance and seek some protecting power. If religion is true, the child must find it, provided his higher nature grows, provided he is not shut up in the prison of materialism. It is this we must guard against, the rest will follow.

The grown man's conception of God cannot be the child's conception. Mankind needs most of all a God of Suffering, because we see that as things are, only through suffering can they be made perfect, because suffering thrusts itself upon us and must be explained and justified and transcended and transformed into beauty. But this is not the child's need. The true God of any one of us can only be one whom we can truly love, whose love we desire, whom we can trust utterly and not with one quiver shrink from.

And if someone says we must teach the truth and the whole truth, the answer is that it is impossible for any finite mind to grasp the whole truth. The only true and vital way is to work for the truth each can receive and live by. The rest is lumber, and obstructs life.

Reference was made at another meeting to Rousseau's wish to exclude the child utterly from spiritual things. He held that to thrust God upon the child was but to make him an idolater for life. It could not be otherwise if the imagination should picture God before the intellect could conceive Godhead.

I do not accept the argument, but the conclusion is a true warning. If some adult conception of God is presented to the child, which often he accepts with fear and shrinking, it can be no true God for him. The conception has no life and power of growth with his growth. It is after all but an infantile conception, and is likely to remain with him and usurp the place of his own true God. In countless cases I believe it is so. The conflict we expect before religious assurance is attained

is the obvious consequence. Our present methods engender all these doubts and fears and difficulties, and they give no chance for their expression. It is not faith which makes us anxious to introduce the child to God. It is lack of faith which thinks God will not help that child unless the proper rites and ceremonies and formal introductions are fulfilled. The child or young adolescent initiated into the solemn rites of Confirmation and Holy Communion too often suppresses his doubts, reluctances, and difficulties. If that is so, there can be no true religious life or development, nor does the mischief stop there.

It seems so out of date to be afraid of free seeking—to think all truth is fully known and needs but to be passed on. I picked up in a shop here Sir Harry Reichel's address on the Development of Theological Education in the University of Wales. Theology, he says, falls into two divisions—"Dogmatic theology, in which the tenets of a particular Church or denomination are authoritatively laid down and inculcated," and "Scientific Theology, in which the object as in other branches of knowledge is the discovery of the truth, and the method employed is for the most part the inductive."

Can there be any doubt which is the more living and fruitful attitude? In any case, in Provided Schools we are debarred from the first kind of Theology. Have we not a right to encourage the child to adopt the scientific attitude in Theology, just as we do in other branches of knowledge?

In teaching Science we say that our aim is not so much to teach facts as to quicken interest, and to show how facts are gathered, so that the child may go on working for himself. I think this view applies to religious teaching more than any other branch of teaching.

The only way to vitalize the teaching, whether of the babies or the elder children, is to give the teachers freedom. We realize in the teaching of every subject that vital work is only done when the teacher teaches what he himself cares about, not something he merely thinks good for the children or which somebody else prescribes.

But people fear that false ideas and false doctrines will be spread among the children if teachers are not policed. Why are people who are so sure of their own truth so afraid of the power of untruth? Doubtless some false ideas, if skilfully and persistently implanted, are dangerous, but the things that decent people and honourable teachers live by and care about and are willing to share with children are not dangerous when they are expressed without plot or plan. And is it not true that many of the ideas children gather from the ordinary presentations of orthodoxy are more or less false, because ideas swallowed whole from other people always must be distorted?

As for the child's own ideas and seekings and desires about the Unseen, they may be false according to our estimate, but if freely uttered they are not only not dangerous, they are necessary stepping-stones to more truth.

I see in the notice of the Theosophical School at Letchworth, under the head Religion, a note that all parents must be prepared to allow their children to hear of and consider points of view other than their own. So far as this means that there will be no attempt to conceal the fact of differences of opinion I think the principle is sound.

My paper does not give any clear picture of what is wanted; and when we think of actual conditions of teaching in England, it seems

foolish even to hope for the liberty to put into practice any visions of freedom. It may be so for long to come; but in conclusion I should like to refer you to Sir Rabindranath Tagore's account of his own school, in his book called, *Personality*. The thing is being done there. In that school Religion has its proper place. It is everywhere. The school is a place where the children "are bidden to realize man's world as God's kingdom to whose citizenship they have to aspire." It follows that the learning to realize things spiritual can be no separate branch of education, but an aspect of the whole. There is no sacred and profane, no turning our backs on this world to look for another. Tagore says:—"We have a personality to which matter and force are unmeaning unless related to something infinitely personal whose nature we have discovered in some measure, in human love, in the greatness of the good, in the martyrdom of heroic souls, in the ineffable beauty of nature. . . . Experience of this personal world, whose reality we miss by our incessant habit of ignoring it from childhood, has to be gained by children by fully living in it, and not through the medium of theological instruction."

The author believes that children have their subconscious mind more active than their conscious intelligence. This reminds us of William James's view of the part played by the subconscious self in religious experiences. And again we might cite Plato's famous passage in the *Republic* on the importance of beautiful environment in childhood, to feed the children's souls as it were insensibly and bring them into harmony with all beauty.

So different are the conditions of life in our hideous towns and barrack schools that it may seem useless to consider what Tagore in India has attempted or attained. Yet his school illustrates, or rather illuminates, fundamental principles which must be striven for wherever children are reared. He warns us against too great eagerness to teach, especially in the matter of spiritual life. "All the hypocrisy and self-delusion in our religious convictions and practices are the outcome of the goadings of over-zealous activities of mentorship."

Rather he relies on the practice of meditation. "I insist on this period of meditation, not, however, expecting the boys to be hypocrites and to make believe they are meditating. But I do insist that they remain quiet, that they exert the power of self-control, even though instead of contemplating on God they may be watching the squirrels running up the trees."

I heard recently of the successful use in an English school of this method of silence. It is the one positive suggestion I should like to make at the end of a paper full of negatives.

A NEW METHOD FOR THE INVESTIGATION OF INTELLIGENCE.—II.*

BY PROFESSOR A. NETSCHAJEFF, Petrograd.

ENUMERATION AND DESCRIPTION OF OBJECTS.

EACH of the objects shown in the previously described experiments was taken away immediately after the answer was received. Then, after the whole sequence of experiments was completed, all the objects had to be enumerated from memory. The results were as follows:—

TABLE VI.

	Number of Persons under investigation.																	
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
The number of objects enumerated ...	5	4	5	5	5	5	5	5	3	5	5	5	5	4	5	4	5	5

The person under investigation, after he had enumerated the objects, was asked to describe them, following the questions detailed on page 13. When examining the results special attention was paid to (1) the number of correct answers, (2) the degree of resistance to suggestions; degree being defined by the number of questions which suggested the wrong answers, but which did not excite illusions. The results were as following:

TABLE VII.

Number of persons under investigation.	Number of questions with correct answers.					Total.
	Purse.	Portrait.	Cup.	Branches.	Ikon-lamp.	
1	4	4	4	2	4	18
2	1	3	3	2	2	11
3	2	3	4	4	1	14
4	2	2	2	3	4	13
5	2	2	3	0	3	10
6	1	4	3	5	4	17
7	3	3	4	5	2	17
8	2	5	2	0	5	14
9	2	1	2	1	2	8
10	3	3	3	4	4	17
11	3	2	3	3	5	16
12	1	2	0	2	3	8
13	2	4	2	4	5	17
14	2	4	5	2	5	18
15	3	3	3	2	3	14
16	3	3	1	1	3	11
17	3	3	4	3	5	18
18	4	4	3	2	4	17
Total ...	43	55	51	45	64	258

* The first part of this article will be found in Vol. IV, No. 1 (March, 1914).

TABLE VIII.

Affirmative answers to questions exciting illusions of memory

Number of persons ...		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
QUESTIONS	Where was the twenty kopeck piece ?	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Where was the yellow bow ?	-	-	-	-	-	-	-	†	†	-	-	-	-	-	-	-	-	-
	Where was the butter- fly ?	-	†	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	To which cone was the beetle fastened ?	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Where was the crack in the lamp ?	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total ...		-	1	-	-	-	-	-	1	1	-	-	-	-	-	-	-	-	-

The sign † marks the cases when the person yielded to the influence suggested by the question.

We see that on the whole, grown-up people were not easily misled by the questions which gave them wrong ideas. In the experiments with children we had different results. As an example, I will give the following data of experiments made with ten children, age being 7 to 15 years :—

TABLE IX.

Age ...		7	8	8	8	11	11	12	13	13	15
Sex ...		b	b	g	b	b	g	b	g	b	b
QUESTIONS	Where was the twenty kopeck piece ?	†	—	—	—	—	—	—	—	—	—
	Where was the yellow bow ?	—	†	†	—	—	—	†	—	—	†
	Where was a butter- fly ?	—	†	—	†	—	†	—	—	†	—
	To which cone was the beetle fastened ?	†	—	—	—	—	†	—	—	—	—
	Where was the crack in the lamp ?	—	—	—	—	†	—	—	—	—	—
Total ...		2	2	1	1	1	2	1	0	1	1

The answers which were given to misleading questions were of the following kind :—

To the question, "Where was the twenty kopeck piece?"—the answer was: "It lay at the bottom." To the question, "Where was the yellow bow?"—the answers were: "on the hat, on the breast, in the neck-tie, at the neck," The butterfly was said to be "brown" "was flying about," "it was drawn here," "was on the flower on the right," "at the bottom," "near to the handle." The beetle was "fastened to the right branch," "on the top branch, yellowish," "the crack in the lamp was in the middle."

ASSOCIATIONS.

While estimating the results of experiment with associations (see above page 14), special attention was paid to the presence of "extensive" associations by similarity or contiguity.

For instance: as a starting point, the word "ikon-lamp" was given to the person under investigation, and he responded to it with the word "ikon" (similarly branch gave bird); purse, tramway; portrait, writing table; cup, glass.

From this we see that "*extensive*" associations are in contrast, firstly, with oral (*verbal*) associations (which have not been observed in these series of experiments), and secondly, with "*intensive*" associations, by which I mean the reproduction of ideas defining the quality or the state of the object named (purse-opened; portrait, hanging; cup, of a tea-set; branch, green; ikon-lamp—burning).

The general result of this form of experiment on eighteen persons is given on Table X :—

TABLE X.
Extensive Associations.

Number of persons.	Purse.	Portrait.	Cup.	Branches.	Ikon-lamp.	Total.
1	—	—	—	—	—	0
2	—	—	—	—	—	0
3	Money	—	—	—	Ikon	2
4	—	—	They drink	Bird	—	2
5	Boots	House	Beer	Bird	Ikon	5
6	Tramway	—	Saucer	Woods	Ikon	4
7	—	Writing table	—	—	At my house	2
8	Lady's bag	—	Glass	—	Wick	3
9	—	—	—	—	—	0
10	Money	Paint brushes	Coffee	Garden	Ikon	5
11	Money	Nail	Lamp	Wood	Ikon	5
12	Travelling trunk	—	Glass	—	Glass	3
13	Money	Cards	Saucer	Wood	Ikon	5
14	Pocket book	—	Bowl (Dipper)	—	Ikon	3
15	—	—	—	—	Ikon	1
16	—	Wall	Table	Wood	Ikon	4
17	A little ticket	—	Milk	Flower	Oil	4
18	—	—	—	—	—	0
Total...	10	6	11	8	13	48

FORMING SENTENCES.

As it has been shown above (page 14), the person under investigation had been asked to form a sentence about two different objects given to him. In the analysis of the material received in this way, special attention was paid:

1.—To the grammatical construction of sentences.

2.—To their inner meaning as far as it indicated the strength of imagination.

While examining the grammatical side of the sentence, we gave special attention to the comparative complication of its form.

By the figure 1, are indicated unfinished sentences; 2, sentences formed of subject and predicate only; 3, simple sentences, consisting of subject, predicate, and one object; 4, simple sentences with two objects of different kinds; 5, single sentences with no less than three objects of different kind; 6, the presence of one subordinate sentence (phrase); 7, the presence of two similar subordinate sentences; 8, the presence of two or more subordinate sentences of different kind.

If the person under investigation gave two independent sentences (even if they were combined by a conjunction), the complication of each sentence was estimated separately, the average being taken as total.

EXAMPLES.—

- 1.—“Put the purse into the ikon-lamp.”
- 2.—“The branch is green and the man is grown up.” (Two sentences each of which is estimated 2, according to its simplicity).
- 3.—“The cup is beside the ikon-lamp.”
- 4.—“The purse lies in the light of the ikon-lamp.”
- 5.—“The colour of the cones tones with that of the hat.”
- 6.—“This very branch reminds me of the sea-shore, of woods on the shore, and of the time when I picnicked there and drank coffee from a cup.”
- 7.—“With the money which I see here I should have added what is wanting in this ikon-lamp.”
- 8.—“I opened the purse and I saw that I still had enough money to buy the ikon-lamp, which I want so badly.”

Each sentence was also estimated from the standpoint of its grammatical form.

A grammatical construction used by each person only once, was marked by the figure 1.

If a grammatical construction happened to be used n -times, its value was considered to be equal to $1/n$.

EXAMPLE.—

When the objects 1 (a purse) and 5 (an ikon-lamp) were shown to person No. 10 simultaneously he formed the following sentence:—“If there were money in the purse it would have been nice to buy some oil for the ikon-lamp.”

Sentences of the same kind (conditional form) were formed by person No. 10 twice more.

When he was shown the objects No. 2 (an autoportrait) and No. 4 (pine branches) he said: “If one had to draw these objects it would have been difficult to draw either of them.”

At the exposure of objects No. 1 (a purse) and No. 2 (an autoportrait of Rembrandt) he formed the following sentence: “If there were any money in this purse, I should have bought such a post card with pleasure.”

Each of these sentences was marked by figures $1/3$, according to formula $1/n$. By the letter “ n ” was meant the number of sentences of one kind formed by the person under investigation.

But the same person (No. 10) constructed two other sentences in a quite different form to that of the preceding sentences.

At the simultaneous perception of objects No. 3 (a cup) and No. 5 (an ikon-lamp), the following sentence was formed: “These two things are the production of a glass- works.”

At the exposure of No. 3 (a cup) and No. 4 (pine-branches) the following was formed: “After hunting it is very pleasant to have a cup of coffee to warm oneself.”

As to variety of (the) grammatical form, each of these two sentences was marked by figure 1. Thus the variety of the grammatical form of all these sentences used by the person No. 10 would be 3, as:

$$\frac{1}{3} + \frac{1}{3} + \frac{1}{3} + 1 + 1 = 3.$$

On the analysis of the content of sentences from the point of view of the strength of imagination shown by their composers, special attention was paid to the relation of ideas expressed in sentences to those objects of perception which were the basis of the construction of the sentences. The content of some sentences was limited to the objects seen.

The person under investigation simply described what he saw before him. For example: at the exposure of a purse and an ikon-lamp person, No. 7 said: "To-day at this experiment I have seen a purse and an ikon-lamp." Each of such sentences was marked by figure 1 as expressing the strength of imagination.

In some sentences the presence of newly-formed ideas suggested by the object seen was noticeable, but they did not overpower the simple idea of the object itself. In such cases the activity of imagination showed itself mostly in the form of commentaries to that combination of ideas which was already given by the sight of objects. *For example*: Before person No. 18 there were a purse and an ikon-lamp. Looking at them he formed a sentence; "In order to buy such an ikon-lamp, one must take money out of this purse and go to the shop." *Another example*: Person No. 17, looking at object 2 (a portrait) and 4 (branches) said: "I have glanced at the portrait and I imagined a fir-branch on the hat." Or, looking at the purse and the portrait of Rembrandt, person No. 13 formed the following sentence: "I think this gentleman has not had this purse before."

In all these sentences the content was not limited to the idea of the exposed objects, but at the same time there were direct references to the objects. In forming a sentence the person did not forget what he was looking at.

Such sentences were marked by figure 2 as expressing the strength of imagination.

In the third series of sentences the newly received ideas were stronger than the simple attributes of the objects. The person under investigation was affected by the impression received only as offering a starting point for the work of his imagination, and the chief content of his sentences was an imaginative production. *For instance*, person No. 1, looking at a purse and an ikon-lamp, formed the following sentence: "One must possess a fortune, not for oneself." Person No. 12, under the same conditions, said: "A merchant prays before an ikon-lamp for the return of a lost purse." Person No. 1, looking at a cup and pine-branches, said: "It is nice to have tea in the woods." Looking at the portrait of Rembrandt and pine-branches, person No. 3 said: "I should have been much surprised to meet such a person in our Russian forests." For strength of imagination such sentences were marked by figure 3¹.

The results of this series of experiments are given in Tables XI-XII.

RECOLLECTION OF SENTENCES.

After the person had given all the required sentences, he was asked unexpectedly to repeat them from memory.

For analysing the results of this experiment, special attention was paid to—

1.—The number of correct words reproduced from each sentence.

2.—Additions and mutilations made while recollecting each sentence.

(Further on, for simplicity's sake, we shall call them "mistakes" in repeating sentences.)

The results of the experiments are given in Table XIII.

¹ In some cases when it was very difficult to include some sentences under the three typical headings, we used the following fraction marks: $1\frac{1}{2}$ — $2\frac{1}{2}$.

TABLE XI.

The Grammatical Construction of Sentences.

Number of persons.	Continuation of objects given.										Total.	
	Complexity.					Total.	Variety.					
	Purse and lamp.	Portrait and branches.	Cup and ikon-lamp.	Purse and portrait.	Branches and cup.		Purse and lamp.	Portrait and branches.	Cup and ikon-lamp	Purse and portrait		Branches and cup.
1 ...	4	4.5	5	6	5	24.5	0.5	1	1	1	0.5	4
2 ...	4	5	4	4	5	22	1	1	1	1	1	5
3 ...	6	6	6	5	8	31	1	1	1	1	1	5
4 ...	4	5	5	5	5	24	1	1	1	1	1	5
5 ...	3	4	6	6	5	24	1	0.5	1	1	0.5	4
6 ...	5	6	5	6	6	28	1	1	1	1	1	5
7 ...	5	6	6	5	4	26	1	1	1	1	1	5
8 ...	6	6	6	6	5	29	1	1	1	1	1	5
9 ...	6	5	4	6	4	25	1	1	0.5	1	0.5	4
10 ...	5	5	5	5	6	26	0.3	0.3	1	0.3	1	2.9
11 ...	5	5	5	4	5	24	1	1	0.5	1	0.5	4
12 ...	5	5	4	3	4	21	1	1	1	1	1	5
13 ...	6	5	6	6	6	29	1	1	1	1	1	5
14 ...	5	5	5	6	5	26	1	1	1	1	1	5
15 ...	8	5	6	5	6	30	1	1	1	1	1	5
16 ...	5	5	3.5	4	5	22.5	1	1	1	1	1	5
17 ...	5	5	6	5	8	29	1	1	1	1	1	5
18 ...	6	6	6	5	5	28	1	1	1	1	1	5
Total ...	93	93.5	93.5	92	97	—	16.8	16.8	17	17.3	16	—

TABLE XII.

Strength of imagination.

Number of persons.	Purse and ikon-lamp.	Portrait and branches.	Cup and ikon-lamp.	Purse and portrait.	Branch and cup.	Total.
1	3	2	3	3	3	14
2	1	3	2.5	2.5	2	11
3	3	3	2.5	2	3	13.5
4	2	2	2	2	2	10
5	3	2	3	3	3	14
6	2	2.5	1	2	3	10.5
7	1	3	3	3	3	13
8	2	3	3	2.5	2.5	13
9	3	1	1	1	1	7
10	2	2	2	2	3	11
11	3	3	3	3	3	15
12	3	3	3	3	3	15
13	3	3	2	2	2.5	12.5
14	3	3	2	2	2.5	12.5
15	2.5	3	3	3	3	14.5
16	1	2	2	2	2.5	9.5
17	3	2	3	3	2	13
18	2	2	2.5	2	2.5	11
Total ...	42.5	44.5	43.5	43	46.5	220

TABLE XIII.
Recollection of Sentences.

Number of persons.	Number of works correctly reproduced. ¹					Number of additions and mutilations.					Total.	
	Purse and ikon-lamp.	Portrait and branch.	Cup and ikon-lamp.	Purse and Portrait.	Branch and cup.	Purse and ikon-lamp.	Portrait and branch.	Cup and ikon-lamp.	Purse and Portrait.	Branch and Cup.	Correctly.	Mistakes.
1	6 (7)	5 (13)	4 (5)	7 (9)	6 (6)	1	9	—	1	—	28 (40)	11
2	5 (5)	7 (7)	6 (6)	6 (6)	9 (9)	—	—	—	1	—	33 (33)	1
3	7 (8)	9 (14)	6 (14)	7 (11)	23 (26)	1	3	6	1	2	52 (73)	13
4	0 (5)	0 (7)	8 (8)	5 (5)	3 (7)	—	—	—	—	1	16 (32)	1
5	5 (7)	0 (6)	3 (8)	5 (5)	8 (8)	2	—	3	—	—	21 (34)	5
6	0 (21)	8 (16)	4 (9)	10 (18)	10 (23)	—	6	3	5	6	32 (87)	20
7	0 (9)	5 (9)	8 (10)	3 (8)	7 (7)	—	4	1	5	—	23 (43)	10
8	0 (9)	6 (7)	10 (10)	6 (10)	6 (6)	—	—	2	2	—	28 (42)	4
9	16 (16)	7 (7)	0 (4)	1 (8)	5 (5)	—	—	—	2	—	29 (40)	2
10	7 (16)	7 (7)	6 (6)	3 (15)	0 (9)	2	3	—	4	—	23 (53)	9
11	2 (5)	8 (8)	8 (8)	1 (5)	6 (6)	3	—	—	3	—	25 (32)	6
12	4 (8)	6 (9)	5 (5)	2 (3)	0 (4)	3	4	1	2	—	17 (29)	10
13	0 (9)	6 (9)	6 (11)	10 (11)	3 (9)	—	—	4	1	2	25 (49)	7
14	11 (15)	13 (13)	6 (9)	8 (15)	7 (14)	3	—	2	4	—	45 (66)	9
15	0 (18)	8 (9)	5 (9)	10 (13)	12 (12)	—	1	2	2	5	35 (61)	10
16	0 (11)	4 (7)	3 (10)	0 (11)	0 (10)	3	—	1	11	3	7 (49)	18
17	10 (15)	7 (9)	7 (8)	4 (8)	12 (12)	1	4	—	3	—	40 (52)	8
18	0 (14)	7 (12)	4 (16)	7 (10)	5 (9)	—	2	9	1	6	23 (61)	18
Total	73 (198)	107 (179)	99 (156)	95 (171)	122 (182)	19	36	34	48	25	496 (886)	162

¹ Figures in brackets show the number of words of a sentence formed previously.

THE FURTHER WORKING OUT OF DATA OBTAINED.

As a general result of the work, on each person's record separately, we have the following data in 14 directions :—

- 1.—Figures showing how often there were *objective* forms of apprehension.
- 2.—Figures showing how often there were *illusive* forms of apprehension (**I**).
- 3.—Figures showing how often there were *critical* forms of apprehension (**C**).
- 4.—Figures showing the number of processes of perception at which *illusions* were observed (**Ill.**)
- 5.—Number of *comparisons* formed by the person when he was asked to recollect anything reminding him (as to colour, form, and emotions) of object exposed (**Comp**).
- 6.—Number of objects *enumerated* from memory (**E**).
- 7.—Number of correct answers while *describing* objects from memory (**D**).
- 8.—Number of cases when the person *did not yield* to the influence of misleading questions (**Y**).
- 9.—Number of *extensive associations* received at the oral enumeration of objects previously exposed (**Ex**).
- 10.—Figures showing *the strength of imagination* while forming the sentences (**Im**).
- 11.—Figures showing *the complexity* of grammatical form of sentences (**Compl**).
- 12.—Figures showing *the variety* of grammatical form of sentences (**V**).
- 13.—Number of words repeated *correctly* (**Cor**).
- 14.—Number of *mistakes* allowed while repeating the sentences (**M**).

To enable one to compare these data one must take into consideration the fact that all these figures cannot be equally high, as the conditions of the experiments do not allow it.

It is evident for instance that if the person showed the objective form in all the processes of apprehension the coefficient would have been only five in any case, as there were only five objects exposed in the tachistoscope. On the other hand, marking the highest degree of grammatical complexity of a sentence by figure 8 we can have 40 as the highest coefficient for five sentences.

It follows that the fourteen above-mentioned data may be compared only if they are given as ratios to the maxima obtainable in each form of experiment.

The following are the maxima for any of the three forms of apprehension (objective, illusive, and critical), 5; for Ill., 5; for Comp, 15; for E, 5; for D, 25; for Y, 5; for Ex, 5; for Im, 15; for Compl, 40; for V, 5.

The maxima for Cor. and M. is fixed by the total number of words formed by the person under investigation.

The following table gives the result of all data included in tables I-XIII in ratio :—

TABLE XIV.
General Total of Results.

Number of persons.	Age.	O.	I.	C.	Ill.	Comp.	E.	D.	Y.	Ex.	Im.	Compl	V.	Cor.	M.
1	41	0	0	20	80	94	100	72	100	0	94	61	80	70	28
2	27	40	20	20	60	33	80	44	80	0	73	55	100	100	3
3	30	60	0	0	40	26	100	56	100	40	90	77	100	71	18
4	28	40	20	0	60	47	100	52	100	40	67	96	100	50	3
5	32	0	0	80	80	73	100	40	100	100	93	60	80	61	14
6	34	60	0	40	40	60	100	68	100	80	67	70	100	37	23
7	32	60	0	0	40	67	100	68	100	40	86	65	100	54	22
8	33	80	0	0	20	92	100	56	80	60	87	73	100	67	10
9	47	40	20	20	60	73	60	32	80	0	46	62	80	72	5
10	38	40	20	0	40	93	100	68	100	100	73	65	60	36	14
11	34	60	20	0	40	53	100	64	100	100	100	60	80	78	19
12	26	40	20	0	60	93	100	32	100	60	100	52	100	58	34
13	28	0	40	0	100	93	100	68	100	100	83	78	100	39	14
14	31	20	0	0	20	93	80	72	100	60	83	65	100	68	14
15	41	80	0	20	0	60	100	56	100	20	93	75	100	57	14
16	32	40	0	20	40	53	80	44	100	80	63	55	100	14	37
17	34	80	0	0	20	40	100	72	100	80	87	72	100	76	15
18	39	0	0	40	80	100	100	72	100	0	73	70	100	37	29

THE USE OF ENGLISH IN MODERN LANGUAGE TEACHING.

A NOTE BY J. J. FINDLAY.

THE interesting experiments conducted by Miss Ida B. Saxby, and reported in the last issue of this *Journal*, lead me to offer some comment.

Her account of the situation is incorrect in one important particular. She considers that teachers who use oral methods think that "they ought to avoid the use of English altogether," and that "it is a sign of weakness to have recourse to it." She regards this view as an inheritance from the first wave of enthusiasm twenty years ago, when the attempt was made to "throw overboard all teaching of grammar, and to eliminate the use of English entirely." I have never known a competent teacher of modern languages using "oral" or "direct" methods who holds the views which Miss Saxby attributes to us. What we tell our pupils is that "they will *gradually* be able to put away English altogether. . . . At first it will be difficult to keep out English." I am quoting from my own lesson notes printed in *Principles of Class Teaching* nearly twenty years ago. Oddly enough, that book was written in Cardiff where Miss Saxby has conducted her experiments. I should never have ventured to publish those Notes on Lessons if I had not been confirmed in my faith by the striking success of my colleagues who taught French in the Cardiff Intermediate School between 1898 and 1903. I mention these facts merely to assure your readers that I am not expounding theory.

The experiments described in the June issue were designed merely to prove what has never been disputed by reliable authorities, and indeed cannot be disputed by any observant person who watches himself in the early stages of acquiring a foreign tongue. We all know that a new symbol, e.g., *maison*, associates itself most easily with our native symbol *house*. This would happen in any case, with illiterate persons as naturally as with school pupils. The latter, however, are much more inclined to establish verbal associations, because they are in a scholastic atmosphere where visual images of words, both written and spoken, occupy so large a portion of their time. So that her conclusion (foot of page 93), "In both cases the group that practised the French words with their English equivalents appears to have been quite as successful as the other in learning to think of them in terms of meaning," may be accepted as a correct statement, but affords absolutely no ground for the conclusion of the next paragraph, in which the investigator at once proceeds to advocate (without apparently any evidence from her own practice) "a certain amount of old-fashioned French-English and English-French vocabulary drill." In a later sentence she goes quite beyond the range of these experiments, and allows herself, on the basis of studies confined to single words, to state that "common idioms should probably be taught in the same way before any analysis of the whole phrase is attempted." I will not take up your space by transgressing into this field, but the credit of laboratory tests such as this is gravely imperilled when the researcher expects her statistics to impose rules of method over a

sphere entirely outside the range of the research. Her conclusion, I could readily prove by illustration, is absolutely unsound.

Let us grant, then, that English pupils when first learning French recall very readily the images, both written and spoken, of English symbols. Miss Saxby is quite right in stating that fact as a fact. The conclusion, however, as regards method which I draw from the fact is absolutely the opposite of that drawn by her. For she has adopted, without argument, the view that thinking in a language is achieved by mechanically associating as on a string a number of separate symbols called words which we image individually. This, of course, is the view of the "old-fashioned" teacher who has not studied the psychology of foreign language learning, but the first thing we get a student of this subject to notice is that the separation of individual words in a sentence is a late process in development, is the result of reflection, and that in actual speaking and thinking we revert to the unreflective, whole-sentence meaning process which the natural man pursues when he seeks for or expresses meaning.

I therefore agree with all the description which Miss Saxby gives on page 89 of association processes, as concerned with "individual words." But no one who understands the business wants to "teach individual words"; what is done with the single word, such as *maison*, is to give it constant association with a French context (spoken and written, visualized in French "content"), so that the interfering native association, *house*, sinks as rapidly as possible below the threshold of consciousness. So treated the difficulty does not trouble either teacher or pupil. When the latter is presented with the sound *maison*, he will either (1) guess what it means from the context, or (2) fail to guess. In the first case, he will recall various forms of "the mental process house," including certainly the symbol *house*. In the second case, the teacher, if sensible, says or writes *house*. The all-important matter is to consider what happens afterwards! If the teacher desires, as speedily as possible, to establish a separate French complex, she will avoid translation of sentences, she will read and speak with her pupils in the new language, and (while having no pedantic scruples about letting the English sound and symbol help a pupil to image individual words) she will do all in her power to give each new word and phrase *a new setting in a new context*. To indulge in translation drill simply hinders this process by keeping in the focus of attention what should sink below the threshold.

I am particularly interested in discussing Modern Language Teaching just now because I also have been conducting an experiment, with Mr. Burford of the Manchester Grammar School. We are desirous of calling the attention of the readers of this *Journal* to the work,* because we want the co-operation of teachers in testing the value of the proposal we put forward. Training College lecturers working in Demonstration Schools are the very persons to conduct such tests, for, as this discussion with Miss Saxby shows, we need all the psychology we can muster. In my view, the comparative failure in England in the application of the reformed principles of Modern Language learning is due to a lack of psychology as much as to a lack of scholarship. I am glad to say that one Training College lecturer is arranging to test the value of our phonetic scheme, but we hope to have the co-operation of others.

* This work is described in detail in *Sound and Symbol*, a notice of which appears on page 160.

ERRORS IN ARITHMETIC.

By W. SCOTT, Head Master Kingsland School, Peebles.

In a paper on errors in arithmetic the suggestion was made that the position of errors in the elementary operations might be examined. The result noted at the time seemed to indicate that the class-graph of such position-errors for any of the simple operations over a period would be wavelike in form. The following discussion of the point arose from the suggestion.

The weekly tests of a class of forty children were examined from the middle of October, 1916, to the beginning of February, 1917. The average age of the class was nine years. Several considerations pointed to the conclusion that the "mechanics" of the work did not offer great difficulty; in addition only one error was due to inversion; only one figure was wrong in most of the sums; and the errors in any one test varied from child to child—general errors were not common.

The name of every child in the class was entered in a register. Each week the sums set were noted, and the wrong figures entered opposite the name of the child who had made the mistake. An entry from the register is shown. Thus a complete record of the sums done and of the individual errors has been kept. Reference to any week's result is simple, and for the purpose of examination of errors the table is useful.

SUBTRACTION.

				Hundreds of thousands.	Tens of thousands.	Thousands.	Hundreds.	Tens.	Units.	Total.
20th October, 1916 ...	...	...	×	×	1	2	1	2	2	6
27th October, 1916 ...	...	...	×	1	1	2	2	2	2	8
3rd November, 1916 ...	...	...	×	.	5	2	4	1	12	
10th November, 1916 ...	...	...	2	1	1	1	2	1	8	
17th November, 1916 ...	...	...	1	1	2	.	1	.	5	
24th November, 1916 ...	...	...	1	1	1	.	1	1	5	
1st December, 1916 ...	...	...	.	2	.	.	.	.	2	
8th December, 1916 ...	...	...	.	.	2	3	.	.	5	
15th December, 1916 ...	...	...	1	.	1	1	1	.	4	
22nd December, 1916 ...	...	...	.	1	.	.	.	1	2	
12th January, 1917 ...	...	...	1	2	1	1	1	2	8	
19th January, 1917 ...	...	...	1	.	1	2	4	.	8	
26th January, 1917 ...	...	...	.	1	.	5	.	.	6	
2nd February, 1917 ...	...	...	.	2	.	2	.	1	5	
9th February, 1917 ...	...	...	.	.	1	.	.	.	1	
			.	3	.	3	.	.	6	
(1) Total errors ...	...	...	7	15	17	24	17	11	91	
(2) No. of weeks ...	...	...	6	10	11	11	9	8	16	
(3) Aver. per week ...	...	...	1.2	1.5	1.5	2.2	1.9	1.4		
(4) Aver. for period ...	...	...	.5	1.0	1.1	1.5	1.1	.7		
(5) % (94) ...	...	...	9	17	18	25	18	12		

The complete table for subtraction is shown. On 20th October only four figures were given in the examples. The next two weeks a figure was added; and for the remainder of the period six-figure sums were used in the tests.

In the summation, we have (2) the number of weeks in which errors occur in the various positions; (3) the average error per week in which errors occur; (4) the average errors per week all over the period; (5) the percentage error.

A maximum is reached in every case at the third figure—that is, at this point errors occur oftenest, the average number of errors per week is greatest, and the average error for the period is highest.

ADDITION.

	Tens of thousands.	Thousands.	Hundreds.	Tens.	Units.	Total.
Total errors	•	23	23	18	15	79
No. of weeks	•	12	12	11	10	16
Aver. errors per week...	•	1.9	1.9	1.6	1.5	
Aver. errors for period	•	1.4	1.4	1.1	.9	
% (79)	•	29	29	22	19	

Only the summation is given for addition. With respect to the maximum errors, the same result shows as in subtraction. The errors in the hundreds place were distributed over the period, whereas in the fourth place, the thousands place, the errors were in two groups: 7, with average 2.1, at the beginning, and 5, with average 1.6, at the end of the period.

DIVISION.

	1st	2nd	3rd	4th	5th	6th	Total.
20th October, 1916	1	3	1	8	7	×	20
27th October, 1916	2	2	4	2	5	•	15
3rd November, 1916	1	3	1	2	2	•	9
10th November, 1916	•	2	5	1	×	×	8
17th November, 1916	•	1	2	5	×	×	8
24th November, 1916	•	1	•	•	•	•	1
1st December, 1916	•	•	8	3	•	•	11
8th December, 1916	•	1	2	1	•	•	4
15th December, 1916	•	1	4	1	•	•	6
22nd December, 1916	6	1	2	2	•	•	11
12th January, 1917	•	1	2	5	•	•	8
19th January, 1917	•	3	2	•	•	•	5
26th January, 1917	•	•	2	2	1	×	5
2nd February, 1917	•	•	1	1	•	×	2
Total errors	(a) 4 (b) 1 (c) 0	18 13 10	34 29 25	31 27 16	15 8 ×	0 ×	102 78 51
No. of weeks	(a) 3 (b) 1 (c) 0	10 8 7	12 10 7	11 9 6	4 2 ×	0 ×	13 12 8
Average per week	(a) 1.3 (b) 1.0 (c) .0	1.8 1.6 1.4	2.8 2.9 3.6	2.8 3.0 2.7	3.7 4.0 ×	0 0 ×	
Average per period	(a) .3 (b) .1 (c) 0	1.4 1.2 1.3	2.6 2.6 3.1	2.4 2.5 2.0	1.1 .7 ×	0 ×	
% (81)	(c) 0	20	49	31	×	×	

The complete table for division is shown. The dividend contained thousands the first week; in the two following weeks tens of thousands were given; then the teacher fell back to hundreds, but increased the figures in the dividend for the last two weeks.

Note the abnormal number of mistakes in the first place on 22nd December, 1916. Five children made the same mistake. As the inclusion of this result would unduly weight the first place in the summations, the result for that week has been omitted.

It should be noted that work in division begins at the figure of greatest local value in the dividend.

Three summations are shown (*a*) includes all sums done in the period; (*b*) omits those in which tens of thousands were given; and (*c*) includes only those in which nothing beyond hundreds occurred.

The high number of errors at the end for week 20th October, 1916, should be noted. These unduly weight results (*a*) and (*b*).

The general results are similar in many respects to those for addition and subtraction.

MULTIPLICATION.

		Millions.	Hundreds of thousands.	Tens of thousands.	Thousands.	Hundreds.	Tens.	Units.	Total.
Total errors	(<i>a</i>)	2	16	33	26	33	25	10	145
	(<i>b</i>)		1	12	17	24	19	8	81
No. of weeks	(<i>a</i>)	1	6	10	12	14	12	8	
	(<i>b</i>)		1	6	8	10	8	6	
Average per week ...	(<i>a</i>)	2	2.7	3.3	2.2	2.4	2.1	1.3	
	(<i>b</i>)		1.0	2.0	2.1	2.4	2.4	1.3	
Average for period ...	(<i>a</i>)	4	1.2	2.2	1.7	2.2	1.7	.7	
	(<i>b</i>)		.3	1.2	1.7	2.4	1.9	.8	
%	(<i>a</i>)	4	12	22	17	22	17	7	
	(<i>b</i>)		2	15	21	29	23	10	

Only the summations are given for multiplication. There are two shown—(*a*) and (*b*); those are given as the number of figures in the multiplicand varied.

Note that the results are similar to those found in the previous discussion.

The outstanding feature of the above results is the position of maximum error. For the class whose work has been examined the third place is a critical point in all the operations. Several questions arise. Is this characteristic of the age of the children, or of their stage of advancement? To answer this question, further work would have to be done with classes at different stages. Again, what is the cause? Is it due to a slackening of attention, or inability to sustain attention?

Various suggestions immediately present themselves. If there are such critical points, then, obviously, some guidance is offered to us in the work of the class room. Two distinct kinds of errors may occur—(1) those arising from imperfect knowledge of method, and (2) position errors; hence, if we are attacking new work we ought to avoid the complications of the position error. The point might be elaborated. Again, it might be of some value to find whether training would move the critical point. This suggests a method of systematic training to sustain attention.

Other interesting points have emerged in the course of the examination, such as the position error for individual^a children. In several cases it has been noted that the same child has the same position error in consecutive sums wrong; and the errors vary from child to child. But the point needs further examination.

REVIEWS.

The Distribution and Relations of Educational Abilities. Report by the Education Officer of the London County Council submitting Three Preliminary Memoranda by Mr. Cyril Burt, Psychologist.

IN his Prefatory Memorandum to this publication, the Education Officer says, "The three memoranda indeed make a unique contribution to the scientific study of educational problems. To the best of my knowledge this volume is the first of its kind in Europe or elsewhere." It is not always that pioneer work receives such prompt official recognition, and it seems proper, before taking note of the contents of the book itself, to express our satisfaction that it should have been accorded here. Interest in scientific inquiry in the sphere of education grows very slowly in England. The Board of Education ignores it, or at least takes little pains to encourage work of this kind. Its own methods are primarily impressionist, except perhaps on its medical side. Its statistical publications hardly touch real educational problems. Hence the peculiar importance of the recent action of the London County Council in appointing an official psychologist and making it possible to produce an elaborate investigation of this kind. It is not designed for popular reading. To quote Sir Robert Blair: "The memoranda offer some stiff reading. It may be expected that only the ablest teachers will master the details of methods and results." (He goes on, however, to express his belief that every teacher in the London service will find in it "a flood of new light on old problems even on a first reading." May we then express a hope that every teacher in the service has already received a copy from the authority?

The object of the memoranda has been to estimate in a preliminary way the distribution of educational abilities among elementary school children and children in the schools for the mentally defective. To quote from the author's introductory note: "There are few problems in educational organization which do not involve some assumption, either tacit or express, as to the way in which educational ability is distributed. The most efficient method of organizing school classes; the subjects for which cross-classification is needed; the best schemes of promotion; the proper allotment of marks; the procedure in internal examinations and in examinations for scholarships; the standards of achievement, optimal as well as minimal, attainable under different conditions and at crucial stages in the school career; tests of progress or deterioration in the educational system as a whole and in individual schools and children; the provision needed for children in special categories—'backward,' 'defective,' 'unstable,' 'advanced,' or 'talented'; the allocation of individuals of appropriate ability to appropriate vocations—these and numerous other problems would be largely solved by a Scientific Census of Educational Abilities uniformly carried out and periodically repeated."

In this scheme, a single but fairly-representative London borough has been surveyed, in the first place extensively and with the prime object of determining the relationship between educational status and age; and in the second place and on a more restricted scale, intensively in the hope of checking teachers' criteria and finding what relation there is between general educational ability and proficiency in particular subjects. Memoranda I and II deal with the first problem in Special (M.D.) Schools and in Ordinary Schools respectively, and Memorandum III is concerned with the second problems.

For the purposes of the first inquiry, the standard in which the child is working is taken as defining his educational status. The teachers' grading in the case of M.D. schools has been supplemented by tests devised *ad hoc* both for whole classes and for individual children. We are not here told what these tests were nor how far they confirmed the teachers' judgments. It is also not quite clear

whether the tables are corrected as a result of these tests. Presumably the tables show the grading of the pupils as it actually existed, and the tests are withheld because they were provisional in character. Mr. Burt arrives at various interesting conclusions. (1) Children in defective schools follow an average rate of progress of about half a class (grade or standard) per annum. Inasmuch as they start at a lower level than normal children (age 7 corresponds to age $4\frac{1}{2}$), these children never rise higher than standard II. (2) Retardation in these schools is on the average about five years. It increases from three years at the age of 7 to nearly nine at the age of 16. (3) Mentally defective children deviate from the normal level of normal children about $4\frac{1}{2}$ times as much as normal children deviate from their own average. (4) The educational attainments of a M.D. child correspond on the average to those of an ordinary child half his age, but the retardation in educational attainments is far greater than that in general ability—a fact of considerable importance in the light of recent legislation, and one which raises very sharply the question of the distinction between schools for merely backward children and schools for “mental deficiency” properly so-called. A statistical comparison between normals may throw some light on this question. This is the special object of the second memorandum.

This memorandum opens by showing the frequency distribution of children of all ages from 3 to 15 over the classes and standards of the schools; the status of mentally-deficient children is shown side by side in red. Only in the middle age groups (8-11) are these frequency curves symmetrical. Disturbing factors—the withdrawal of clever children in the higher classes, discontinuity in education caused by transfer from infants and junior departments to upper schools, &c.—probably cause this want of balance.

These data are next subjected to two analyses. In the first, which is preliminary, Mr. Burt takes normal progress to mean an advance of one class each year. The child starts in standard I at 7 and is in standard VII at 13, and a child of 13 who is in standard IV is termed backward by three years. He finds 4.2% of the children between 9 and 15 of the borough with which he is concerned are on this scale backward by three years or more, and that less than one half of the children are working in the standard normal for their age. These figures are exclusive of the children in M.D. schools, and the position is worse in the non-provided than in the provided schools.

When the average of each age is investigated, he finds that in educational ability normal children tend to vary above and below their school age as follows:—

At the age of 10, by at least one year;

At the age of 5, by just half a year;

At the age of 15, by nearly one and a half years;

and throughout, by about one-tenth of their age.

A comparison of these standard deviations with figures for physical variability brings out the fact that physical differences show an increase in their standard deviations as the children grow older. Unless, therefore, we are to suppose that mental differences are more constant than physical, we are led to the result that our educational system makes too much for uniformity, perhaps by forcing up the backward and not giving capacity its chance.

A re-examination of the figures, to bring out the numbers at each age whose educational standing is within the range given by the standard deviation for their age, or is outside that range but within a range exceeding once, twice, three times, &c., the standard deviation, yields a curve which approximates very closely to the normal “curve of error.” This result is of considerable social significance, as it means that educational ability is uniformly distributed throughout the population.

A similar procedure enables Mr. Burt to show very clearly the overlap between the children in defective schools and those in normal schools. There follows a very valuable discussion of the line of demarcation between

backward and defective children, together with a tentative statement of causes of backwardness. His examination of individual cases has led him to conclude that 39 per cent of the cases of backwardness are due to secondary or acquired causes, and 61 per cent to intrinsic mental defects. This, a careful analysis of the causes and treatment of backwardness, is, we venture to think, one of the most suggestive and valuable parts of the whole report. Special provision for backward and border-line children is, he thinks, an urgent educational reform. The memorandum closes with an examination of the degree of backwardness which may be taken as evidence of mental deficiency, and a brief reference to the problem of the super-normal and the best means of selecting them.

It would be premature to suppose the results of these two memoranda final. A comparison with other towns is essential, and it is very desirable that further elaborate surveys of this kind should be undertaken. The labour involved is great, and an elementary knowledge and mastery of statistical methods are essential, but the fact that we should be lifting educational administration and practice out of the domain of mere opinion into the realm of fact makes it worth while.

There are, of course, difficulties of another kind which statistical inquiry may help to diminish, though at the outset they prevent our regarding the figures as more than approximately accurate. Methods of promotion vary from school to school; standard III has not so exact a meaning as it had in the 'eighties; requirements for a particular educational status are in no sense standardized. Mr. Burt assumes quite naturally and properly that educational ability is actually shown by the school courses as he finds them—so far as normal children are concerned. A "normal" child is in fact one who reacts "normally" to the present school situations. Mr. Burt does not discuss the question whether those situations are the most educative we can devise. He does at one point venture to suggest that they tend overmuch in the direction of uniformity. The point, however, is whether the term "educational ability" is quite the best for his purpose.

In his third memorandum, Mr. Burt deals with the relations between ability in different subjects of the school curriculum. At the outset, he discusses in a brief paragraph the general effects of teaching, so far as his inquiry has revealed them. He finds that the main effect is to increase differences already present from birth. If this is true, we may ask whether the fact condemns the schools, or whether that prevalent eighteenth century view which attributed differences between man to differences of educational opportunity was fundamentally wrong. In any case, Mr. Burt finds that the best ability is not yet made the most of, and that children are not equally able in all directions, though that is the tacit assumption of primary school organization.

In this part of his inquiry, special sets of tests were employed and a special system of marking was adopted, in order to avoid the confusion of the factors which determine ordinary school marks. A hundred and twenty pupils from three different schools, of the same sex and about the same age and standing (St. V), were the subjects chosen.

The problem of marking was very carefully considered, and all readers will agree with Mr. Burt's criticism of current methods. Every teacher assigns his own meaning to the numbers he employs, and nobody who is unfamiliar with this meaning can interpret them. The plea for a standardization of marks is clearly and strongly put, and the constructive suggestions would, with certain additions, introduce precisely the right kind of accuracy.

We cannot, unfortunately, quote them in detail. Assuming that ability is distributed in accordance with "the normal curve of error"—an assumption justified by the results given in the previous memoranda—and believing that in

ordinary groups of children it is not possible to distinguish between more than 20 degrees of merit, the following standard scale was adopted :—

Degree of ability.			Number of children probably exhibiting each degree of ability.			
Mark.	Deviation from average in terms of standard deviation.	Suggested designation.	Theoretical percentage.	Suggested number in a group of about 100.	Suggested number in a group of about 60.	Suggested number in a group of about 40.
0 to 4	— 3 or more	(Special cases).	0.30			
5	— 2½	Extremely bad	0.92	1	1	
6	— 2	Very bad ...	2.78	3	2	1
7	— 1½	Bad ...	6.56	6	4	3
8	— 1	Very poor ...	12.10	12	7	5
9	— ½	Poor ...	17.47	18	10	7
10	0	Medium ...	19.74	20	12	8
11	+ ½	Fair ...	17.47	18	10	7
12	+ 1	Very fair ...	12.10	12	7	5
13	+ 1½	Good ...	6.56	6	4	3
14	+ 2	Very good ...	2.78	3	2	1
15	+ 2½	Excellent ...	0.92	1	1	
16 to 20	+ 3 or more	(Special cases).	0.30			

Practical difficulties suggest themselves at once. Most of us are apt to regard our geese as swans, and a mistaken feeling of "self-defence" tends to a lowering of standards and an increase in the number of those who get more than 60% of the marks. On Mr. Burt's scheme, we shall normally get only four such out of a class of 40. In testing mere dexterities, like spelling, arithmetical accuracy, fluency in reading, and writing, either the standard of performance must be very high or the ordinary teacher would feel depressed to find only 10% of his class achieving so low a percentage. The whole problem depends upon the nature of the test and the expectation. To tell me that 20% of my class may be expected to get half marks in any test I give them is not in itself enough, unless efficient teaching is to count for nothing. Unless standard performances are given, I am, in fact, not very much helped by a table of the kind. In mechanical arithmetic some preliminary work on "norms" has been done, but much remains to be done for problem work in that subject, and for the rest of the school curriculum relatively little has been definitely accomplished. Mr. Burt does not give his tests, nor does he give us the actual results of his marking, nor—what is most desirable—have we any idea of the performance in each subject which he finds Bad, Medium, Good, or Excellent.

This, however, was not his problem. He is concerned with the relationship of abilities in different subjects. We are now on ground which can hardly be adequately dealt with in a summary notice of this kind. Mr. Burt's tables and comparative diagrams need to be studied at first hand. Some of his general results may be quoted. Thus, he finds (1) that "among individuals of an ordinary school class, ability in any one subject tends on the whole to be accompanied, to a greater or less degree, by ability in nearly every other subject;" (2) that "performances in all the subjects tested appear to be determined in varying degrees by a single common factor. He calls this hypothetical general factor 'General Educational Ability';" (3) that of all the single scholastic tests the one which gives the best estimate of this ability is an exercise in composition, set as a test of reasoning; (4) that subjects may be divided into four groups in which positive correlations are specially marked an arithmetic group, a manual group (including writing, drawing, handwork), a linguistic group (dictation and reading), a composition group (including history, geography, science, and composition). The heterogeneous nature of the last group will strike the reader, but it is probably due to the nature of the tests which excluded special knowledge and mere memory work. The bearing of these results upon the problem of classification is obvious. It should be noted, however, that these correlations are obtained by eliminating the

influence of general educational ability. They are due to factors inherent, shall we say, in the relationship of mind to the particular subjects, or, in technical language, to "specific factors." In other words, if it were possible to get a class in which general educational ability was uniform, we should find differences in individual performances in different subjects much more marked. In "mixed classes," almost any test will serve to range the children in a satisfactory order of merit. Those at the head of the list for composition would almost certainly include the best manual workers, and those, therefore, best fitted for trade scholarships—an interesting general result which calls for more detailed comparison with actual experience.

As a further contribution to the problem of classification, Mr. Burt has entered into an elaborate statistical examination of the work done by children in the same age group and by children in the same classes. He prints only the statistics of the two "subjects"—mechanical arithmetic and dictation. Incidentally he insists upon the insignificance of mere averages. Standard deviations are an essential. "In age groups, he finds that about 23% of the children in one group are better than the average of the next age above, and nearly 34% are worse than the average of the age next below." "The overlap in other subjects is almost equally marked." It is greatest in subjects which depend on native power (e.g., drawing and manual work), and least where acquired information is most concerned. When "general educational ability" is examined, the overlap is about 18% in each direction.

We may, in conclusion, summarize the results which Mr. Burt has reached.

1. Age-limits for promotion should be much more elastic, embracing a far wider range than a single year. A child should not be kept back in a low class because he is weak in one subject.
2. Reclassification for different subjects, or groups of subjects, is necessary.
3. There is in the schools a tendency to promote backward children on account of age, and to keep back young children of conspicuous ability.

This very incomplete survey of Mr. Burt's work can give only an inadequate idea of its value. The labour involved has been enormous, but if only because he has given us what is in many respects a model research, it was worth while. Of course, it is much more than that. His results, even though tentative, stand for comparison with other work of like kind. They stand, too, for critical consideration in a way which is not true of most so-called educational researches. The clearness with which he has marshalled his facts, the critical acumen shown in their consideration, the instances in which "loose ends" are indicated as affording problems for further research, all make the small volume a most valuable contribution to educational science. We congratulate him upon his accomplishment, and the London County Council upon its enterprise and wisdom in creating the appointment which Mr. Burt fills with such ability and devotion. J. A. G.

The Distribution of Attention. By E. Neil McQueen, M.A., D.Sc. *British Journal of Psychology*, Monograph Supplements V.

THIS is an elaborate and carefully-planned research, including tests performed upon both children and expert observers. The main purpose of the research was to discover whether there is such a thing as a *general* power of distributing the attention, and the author's conclusion is that the experiments strongly support the negative view. Various mental tests (dotting circles, tapping, &c.) were used; when taken singly they are called "undistributed"—in reference to the kind of attention required; when two tests were done simultaneously they are called "distributed." The author's main position is based, in the first place, on the fact that "if the power of distribution is general, its introduction should produce a higher correlation between the distributed performances than existed between the undistributed performances." But this was not the case. Furthermore, the correlations between the distributed performances were obtained, with the effects of the undistributed eliminated. The average of their correlations was only 0.042—again suggesting the entire absence of any power of distributing the attention—

common to all kinds of pairs of mental tasks. Various other lines of argument suggest the same conclusion.

There is, however, one assumption of fundamental importance made by Dr. McQueen, as to which I am very doubtful. He says, "It is apparent that such factors as produce a correlation between the undistributed performances must also tend to produce a correlation between the corresponding distributed performances, since those individuals who do relatively well in A alone will obviously tend to do relatively well in A when it is performed simultaneously with T, and so on." Here Dr. McQueen assumes that the mental processes involved in doing A alone, and in doing A at the same time that T is being done, are largely the same. But it would seem possible that the attempt to do T at the same time as A very materially alters the mental processes involved in doing A. In which case it would not follow that "apart from all question of distribution we should expect the same correlation between the distributed performances as was shown between the summated undistributed performances." The common factor of a "power of distributing attention" might merely serve to conceal to some extent these changes. This is perhaps unlikely, but the possibility makes this particular argument of Dr. McQueen something less than a demonstration. And the truth of the suggestion that there may be an appreciable change in the mental process involved in doing A, as a result of trying to do T at the same time, is indicated by other passages in the paper itself; e.g., "That the distribution makes some difference is proved by the fact that the order in ability for a task or tasks not done under conditions of distribution is not the same as the order in ability for the same task or tasks performed under conditions of distribution." There are, however, other lines of argument used by Dr. McQueen which I think are not affected by this criticism. Taken as a whole the research certainly affords evidence that capacity to distribute, or alternate attention between two simultaneous tasks, is specific, i.e., varies according to the particular tasks concerned. A large number of other interesting facts are revealed in the course of the paper. To teachers it will be of interest to hear that ten out of fifty children actually did better in adding when they tapped simultaneously than when they did the adding alone. Only one expert observer was confident that in his case there was a real distribution of attention between two tasks which remained entirely dissociated.

C. W. V.

Ludus Literarius, or The Grammar Schoole. By John Brinsley. Edited, with Introduction and Bibliographical Notes, by E. T. Campagnac. (xxxix + xxvii + 363 pp.) Liverpool University Press. 10/6 net.

PROFESSOR CAMPAGNAC is doing a work for which all students of the history of education are grateful. He has already given us a translation of Sadoletto and a reprint of Hoole. Now he makes generally available Brinsley's *Ludus Literarius*. We all hope that this will be duly followed by Dury's *Reformed School*.

The great value of Brinsley's book is in the contemporary picture it gives of the actual aims, work, and organization of English grammar schools in the early seventeenth century, and of the results they attained. The dialogue form in which it is written enabled him at once to set forth the usual practice and to indicate the reforms he desired. He makes very plain to us how narrow was the received aim, how wooden the practice, and how poor the results. Though few of the boys were to be sent on to the university, the whole aim of the school was to prepare for it, and the preparation was purely linguistic—Latin first, then Greek, and sometimes Hebrew. It is confessed that grammar school boys often forgot how to read English, were seldom taught to write a decent hand or to express themselves in their mother-tongue, and, so far from learning arithmetic, could with difficulty recognize either Roman or Arabic numerals. Everything was sacrificed to Latin, yet the outcome was so disappointing that, says Spoudeus, the exponent of the current methods, "it hath driven me into exceeding passions, causing me to deale over-rigorously with the poore boyes" (p. 173). And "in very many schooles . . . the whole government [is] maintained only by continuall and terrible whipping" (pp. 276, 277). So it followed that many boys were early removed from

school by their parents, and "others also have been made so fearefull, that they would rather desire to goe to any base trade or drudgery, then to be schollers" (p. 173).

Brinsley, in the character of the other interlocutor, Philoponus, sets forth his plans for reform. They do not go to the root of the matter. They touch neither the aim of the school nor the adaptation of the subject-matter of instruction to the purposes of life or to the interests of childhood. Professor Campagnac remarks that "Brinsley tells us very little of 'child-nature'" (p. ix), and justifies him by the aim of his book. But it may be suspected that it never occurred to him to ask himself such fundamental questions. "It was his business to teach boys Latin and Greek" (p. ix), and, despite the larger views of earlier writers, with that he seems to have been content.

The task he undertook was a detailed exposition of his school-practice, though, as Professor Campagnac points out, in that practice a quite definite theory is implicit. His foundations are in Ascham and the Jesuits. From the former comes the constant use of translations; from the latter the varied appeal to emulation as a spur to effort. This detailed working-out of method cannot here be summarized, but teachers of English as well as of Latin may find suggestion in it. In any case, the book is a historical document of quite first-rate importance, and as such to be cordially welcomed. J. WELTON.

Janus and Vesta. By Benchara Branford. (xv + 316 pp.) Chatto & Windus. 6/- (Concluding notice.)

It is a new heaven and a new earth that Mr. Branford is concerned with. He surveys the world's past in wide sweeps, sums it up in mighty generalizations which seem to take their rise in his essential mysticism quite as much as in the facts of world-history. His forward vision is more nearly akin to that of the prophets of old than to that of the practical reformer whose petty adherence to the facts of life must try this ardent spirit.

The key of the future lies, he thinks, in the school. As he pictures it, the school is to be "an idealized model of the world, and the world as a realized model of the school." (The author is fond of this type of word-play, so much so as at times to obscure his meaning.) "A good school works for eternity." So far in man's pedestrian course the school has usually lagged far behind his best thinking. Schoolmasters are proverbially conservative and often foolishly resistant to change, but Mr. Branford foreshadows a reformed school spirit which shall in truth present a model to the world, and play a leading part in its regeneration.

For such a great task a new type of schoolmaster, a new curriculum—a word too "cast-iron" in its associations to suit the present occasion—and, above all, a new school spirit are required. The schoolmaster of the future must be, first and foremost, a humanist whose first and last consideration is "the noble life abundant of the pupil," not the subject of instruction. His aim will be culture in the best sense, and his instruments will be language (including music and literature of all kinds), the arts and crafts, and the natural sciences. Every teacher, over and above his basic humanism, must be a specialist in one of its three forms—Language, Nature, or Craft. So we may hope to break down that huckstering system which dispenses knowledge packets in the schools in more or less appropriate bundles, which are tested by experts in the true market spirit.

As a step in this direction the author makes a powerful plea for the establishment of Faculties of Arts and Crafts in the Universities. Such a departure would bring those institutions into contact with industrial workers, to the gain of both.

We cannot, unhappily, follow Mr. Branford into his later chapters, in which he examines more minutely the relative claims of special "disciplines" to a place in his educational vision. Mathematics, the queen of the sciences, receives, as we should expect, most favoured treatment. The spirit of his treatment throughout is cosmological, and Mr. Bransford suggests that the more mystically-minded sex should be entrusted with its beginnings for that reason. Science in its relation to occupation has a special chapter. "Children shall handle it; youths read it; men understand it; and old men praise it."

The political principles which lie behind the author's thinking must be left without notice. We can, in conclusion, commend the volume to every thoughtful schoolmaster. He will surely be impatient at times with the form and method of the book, but he cannot fail to find in its crowded pages much to stimulate and perhaps also to encourage him.

J. A. G.

The Scientific Study and Teaching of Languages. By Harold E. Palmer. (328 pp.) G. G. Harrap & Co. 10/6 net.

A BIG book, well bound and well printed, with such an alluring title raises great expectations. The author's preface will affect different readers in different ways. The unsuspecting reader will be impressed. Here at last a competent person is going to solve all his theoretical and practical difficulties. Another type will find the preface unpleasing. The Daniel-come-to-judgment tone will arouse active opposition in his mind, and make him already regret his half guinea. Should his interest survive the preface, he will presumably read the synopsis and learn something of Mr. Palmer's method.

Restricted space will not permit us to survey the contents of the book in any detail. Unfortunately, the author has adopted that vicious German practice of taking nothing whatever for granted—a practice which often mistakes prolixity for profundity. Thus he requires ten pages to show that a teacher in deciding upon his programme must take into account his students, their previous work in the subject, and the object they have in view. A rough estimate suggests that fully one-third of the book is taken up with similar elaborations of the obvious, which are not less tiresome because they are expressed in a technical jargon more than commonly obtrusive. As for the remaining two-thirds, it is difficult to believe that their elaborate analyses can be very helpful to teachers who have thought seriously about their work, and still more difficult to think that a beginner will be greatly helped by them. Is it quite impossible to put into simple English sentences like these: "Inseccables, like all other ergons, are purely arbitrary, they are not scientific units but conventional units, the inseccable of one language may equal ergonically the compound of another"; "An ergon may be a polylog, a monolog, a miolog, or even an alogism"? And what are we to make of such writing as this: (Of language) "the alphabetic aspect alone is artificial; the literary aspect is artistic, the rest is natural science"?

It would be unfair to say that the book contains nothing of value to the teacher, but what is of value might have been written much more briefly and clearly. The author's enthusiasm and complete want of humour have led him to produce a portentous volume where a small handbook might have served his purpose much more adequately.

Education—Selective, Specific, Compensatory. By Michael West. (viii + 223 pp.) Longmans, Green & Co. 3/6.

MR. WEST is a member of the Indian Educational Service, and the Director of Public Instruction in Bengal (Mr. W. W. Hornell) writes a preface to his book. It is an interesting analysis of three types of education which alternately dominate public educational policy both at home and elsewhere. Selective education puts schoolboys through a general curriculum success in which gives social status, and in its most vicious form produces the *déclassés* B.A.'s who find no useful place in society and become centres of social unrest. Specific education subordinates the individual to the technical or other necessities of society, and compensatory education strives to keep manhood alive in a social organization based more and more upon a narrow specialism. We have not space to follow Mr. West's argument in detail. His exposition is clear, though the smallness of the book and the greatness of the subject have compelled him to adopt a "staccato" style of writing which rushes on from point to point in an almost breathless haste. Although the author has India and Indian problems at the back of his mind, his book is full of suggestive criticism applicable to conditions in a Western civilization like ours. Mr. West is apparently a Public School product. The education of the English

Public School is his ideal type of compensatory education—the Public School run very much as an ordinary boy would like it to be run, one which does not pretend that the class subjects are really of importance and the games and discipline only secondary.

One-third of the book consists of a survey of education in Bengal. Students of education should read it not only because of the light it throws upon what is perhaps the most important problem in Indian administration, but also because the book is throughout a live criticism of current educational ideas. Mr. West has a wide acquaintance with educational and sociological theory, and his book abounds in references to social and political writings.

J. A. G.

Educational Reform, being the Report of the Education Reform Council.
(215 pp.) P. S. King. 1/6.

THE Education Reform Council owed its origin to the Teachers' Guild of Great Britain and Ireland. Its object was "to consider the condition of education in England, and to promote such reform and developments as may appear desirable." Thanks to the energy of the general secretary, Mr. G. F. Daniell, a very representative council was formed, which organized itself into committees each charged with a separate problem. This interesting and valuable volume is the result. Dr. Garnett has written a general preface.

The unofficial and voluntary character of the Council is noteworthy. Its individual members for the most part either are or have been teachers. They may be said to stand for the reforming professional mind. Laymen may be suspicious. Professions are apt to look at problems very much from their own interested standpoint. Proposals which come from a "Teachers' Guild" before other "Guilds" are effectively organized ought to be carefully scrutinized and critically considered.

For this reason we hope the volume will get into the hands of all our educational administrators, who might even get authority to distribute copies amongst their committees. Vast good would be done if those who control education could be induced to read something about it. For ourselves, we have found the various reports useful both for their constructive proposals and often also for their coherent presentation of current controversies. Review in the ordinary sense is impracticable. We must content ourselves with saying that the reports number nine in all, and that they deal with Administration, Universities and Higher Technical Institutions, Training of Women for careers, Secondary and Elementary School Curricula, Continuation Schools, Training and Status of Teachers, Medical Service in Schools, Character Training and Examinations.

The Principles of Rational Education. By Charles A. Mercier, M.D. (87 pp.)
The Mental Culture Enterprise.

DR. MERCIER is a distinguished alienist whose written work is always attractive both in form and matter. This little essay is no exception to the rule. It is a vigorous attack upon the traditional elements in our educational system—notably upon the part which classics and mathematics play in it, as well as a picturesque account of the things that might be. Although we find nothing new in the book, and although at times the author seems to find pleasure in flogging a dead horse, its popular style should give it a wide circle of readers, and help to make folk think about what the present Minister of Education has called "the greatest thing in the world."

Educational reform is subtle and slow-moving. Great national crises stimulate change which is often merely destructive, and Dr. Mercier is as little content with the more clamorous advocates of science as he is with those who would make Latin compulsory for every boy in a Secondary School. Differences in endowment as the basis of his constructive programme (differences which become more marked as children grow older), and preparation for an active life is its object. A modern state demands ideals, practical capacity, and effective knowledge in its citizens, and it looks to the schools to provide them.

We may assure Dr. Mercier that he is not a voice crying in the wilderness, and that some schoolmasters do not mind spending themselves freely on lines not dissimilar to those which he is advocating. The greatest danger nevertheless remains. Science may become as degenerate a routine as classics still is in many places. Only let it become a mechanism of exercises in meaningless measurement, and its fate is sealed for a generation.

A Scale of Performance Tests. By R. Pintner and D. G. Paterson. (x + 218 pp.) Appleton & Co. 2 dollars.

THIS book, though especially interesting to those concerned with the grading of mental deficiency, will be found suggestive to others if for no other reason than the contrasts which it offers to the Binet-Simon scale. The fundamental feature of the tests here described is that they call for response to a practical situation in a practical way without the use of language. Deaf children, children who do not understand the speech of the inquirer, children whose general linguistic attainment is low, due perhaps to circumstance entirely, are brought on a level, and the authors of the scale claim that, if the Binet-Simon scale favours those who are linguistically well trained, their scales may do something to check this tendency. The authors find, in fact, that language ability is not uniformly correlated with general intelligence, and they have attempted to standardize performance tests in common use to supply a felt want.

As an experimental effort in a desirable direction, the authors have been wisely advised to put the results of their work into an accessible form. Their discussions of results are clear and admirably free from dogmatism. Further work on these lines is invited, and we do not doubt that the book will help discussion and inquiry. It is a product of the psychological laboratory of the State University of Ohio, and is another example of the type of service which psychology may render to pedagogy.

Outlines of Political Economy. By Professor S. J. Chapman. Third Edition, revised and enlarged. (xvi + 452 pp.) Longmans, Green & Co. 6/- net.

A BOOK from the pen of Professor Chapman needs no introduction to students of Political Economy. The chief features of this new edition (which is an enlargement of that of 1913) are—the enunciation and explanation of many of the chief economic problems arising out of the European crisis, and a comprehensive survey of the development of economic thought from Xenophon to the present time.

The question of the adjustment of the machinery of production to the new demand is touched upon, as well as the numerous fiscal and monetary changes which have arisen during the present war, either through emergencies at home or from our altered relations with other countries.

The alterations of the text are undoubtedly valuable in the additional clearness they impart to the exposition of a complex subject, and the welcome re-arrangement of the diagrams has obviated much tiresome reference; but perfect lucidity of diction is not yet attained, and it is often rather difficult to catch the author's meaning. Faulty proof-reading is doubtless responsible for the lack of minor punctuation and for such obvious misprints as those which occur on pp. 5, 221, 272, &c.

E. M. K.

The Public School System. By V. Seymour Bryant, with a preface by Lord Rayleigh. (xvii + 78 pp.) Longmans, Green & Co. 1/6 net.

What reforms are necessary if the public schools are to see their proper part in the coming conflict for national supremacy is the topic of this little book. Without following Mr. Bryant's detailed suggestions and criticisms, we may note the chief points of his constructive reforms. He would have the preparatory schools modernized, and brought into organic connexion with the public schools, so that an interchange of masters would be possible. Specialization should not begin until the age of 16 or 16½, after which limited specialization in classics, modern literary studies, or in science and mathematics should be allowed. The greatest possible freedom from external examinations, the adequate payment of assistant masters, freedom from Government control, the inculcation of the duties

of citizenship, and last, but not least in its significance, new Boards of Governors, who shall consist in large proportion of scientific and business men an essential. When "the waste in the teacher's workshop is the lives of men," we shall agree that it is action and not endless discussion that is wanted, and Mr. Bryant's book should do something to hasten it.

Sound and Symbol. By J. J. Findlay with W. H. Bruford. (29 pp.) 1s. net.

This interesting pamphlet is the outcome of the meetings of a group of teachers interested in language teaching. Under Professor Findlay's inspiration, experimental work on German was carried out within the group itself, with the result that they came to the conclusion that the International Phonetic Script was a mistake, first because it used symbols already associated with other sounds in the minds of the pupils, and second because it is purely *ad hoc*. It leads to nothing beyond itself, and has of course ultimately to be discarded. An independent script is desirable, preferably one which would be useful later in some curtailed form for shorthand writing. Such a script the authors believe themselves to have found in Mr. Kingford's Oxford Shorthand. Preliminary lessons in the structure of the throat, vocal organs, &c., should, it is urged, be given before any modern language course begins. An outline of such a course is offered, and two charts of phonetic symbols are indicated in the pamphlet. Experimental assistance is called for, about which readers should refer to Professor Findlay's article in this number of the Journal.

The Compleat School Marm. By Helen Hamilton. (100 pp.) Blackwell. 2/- net.

THE sub-title of this little volume, "A Story of Promise and Fulfilment," indicates its object. In ingenious blank verse, the author tells the life story of the high school girl who by virtue of her academic powers passes to college, graduates, becomes a form mistress, and finally blossoms into membership of the élite. Her satire is sometimes amusing, often poignant, at times perhaps cruel. But it is surely not the author's object to give pain. She is concerned to make us see ourselves as we are, to realize the vicious circle in which we are prone to move. An unobtrusive friend of girls' education might contrive to put a copy into every mistress's room, and Heads themselves—if their sense of humour has survived—would find a profitable hour in its perusal. Satire is often the most direct way of restoring a sense of proportion, and bringing us again into touch with realities. The satirist's angle of vision is not, of course, the true one, but it is useful in enabling him to bring into view features of our work to which serious-minded (how often that is another word for narrow-minded!) devotion to detail has made us blind.

Development of Personality: a Phase of the Philosophy of Education. By Brother Chrysostom, F.S.C., with introduction by Thomas W. Churchill. Philadelphia: John Joseph McVey. 1916. (xxi + 379 pp.)

THIS book, by a member of the Order of the Brothers of the Christian Schools, urges the importance, for all teachers, of religious and especially of Catholic ideals; and describes the fulfilment in a religious novitiate of all the greatest needs of the training of teachers. The author's earnestness and sincerity are manifest, and his wide reading does not need attestation by the thirty-page bibliography at the end. But he has felt it right to support his own statements by so many quotations from other writers that the whole effect is rather that of a patchwork; and the authorities quoted are not all of equal merit. One would have preferred a shorter book based more plainly on Brother Chrysostom's own experience and judgment.

H. M. W.

Case Studies of Mentally and Morally Abnormal Types. By Wm. Healey, M.D. (77 pp. Blank interleaves.) Printed for use in the Harvard Summer School, 1912.

This collection of forty-nine studies is an ingathering of the physical and psychological facts which resulted from Dr. Healey's examination of individual boys and girls at the Juvenile Psychopathic Institute of Chicago. He regards

each case as a type, and presents us with the significant data which include the results of psychological tests (Binet and others), without offering any comment upon them. The studies are meant to be used as exercises in diagnosis and prognosis. As such they are an excellent example of the sort of thing which might be done amongst normal children. A volume of concrete studies of normal childhood might be accomplished which would be tremendously useful to students and practitioners in the teaching profession.

The Religious Difficulties of Children. By Edith Read Mumford, M.A.
London: The Sunday School Union. (113 pp.)

THIS book, says the author, owes its existence to a monthly Correspondence Column, conducted in the *Sunday School Chronicle*. It is less of a systematic treatise than the same writer's "Dawn of Religion in the Mind of the Child," dealing rather, under broad headings, with a series of particular difficulties brought forward by correspondents. This, like the earlier book, shows an extraordinarily delicate sympathy with children's minds, and a courageous confidence in our power of helping them towards religious truth, if only our own experience is genuine enough and our own thought sufficiently thoughtful. The wise practical suggestions given would be helpful to many people at every time of life.

H. M. W.

Manuscript Writing. By various writers. Reprinted from "Child-Study."
(24 pp.) Longmans, Green & Co. 3d.

A VERY interesting series of papers, which should appeal to all elementary school teachers who are weary of pothooks and hangers and their attendant uglinesses. Whether the revival of an older fashion in writing actually produces more letters per minute or not seems unimportant. The question of greater beauty and greater legibility would more than outweigh a slight deficiency in that respect. The pamphlet should be widely read. Perhaps its doctrines might be more dogmatically set out in another cheap booklet, which should contain preciser directions and further examples showing progress at different ages for average children. A threepenny booklet on these lines would surely "pay."

The Art of Teaching Arithmetic. By Jeannie B. Thomson, M.A. (viii+295 pp.)
Longmans, Green & Co. 4/6.

Miss Thomson writes primarily for elementary school teachers, who are of course concerned with large classes. She discusses everyday difficulties in a helpful and suggestive way, but we may hope that in a new edition of the book something may be done to make the treatment of the subject more systematic. The study of De Morgan might be useful in this regard, not to mention the later work of Smith, Carson, and others. The tendency of the book is to elevate the importance of manipulative skill at the expense of training in simple logical and quantitative analysis.

C.B.

Experimental Schools. (Bulletin 3, 4, 5.) Each 10 cents. Bureau of Educational Experiments, New York.

We should like to draw the attention of readers to the publications of this American Bureau. The Bulletins are admirably printed and illustrated. They are moreover thoroughly expressive of the new spirit in Education, which owes much to American inspiration. The Bureau is made up of a group of persons themselves engaged in first-hand efforts to work out in practical fashion the idea of freedom in education. It works by initiating new experiments, by collecting and publishing information, and by helping experimental work in being.

Education To-day and To-morrow. Addresses by P. E. Matheson. (138 pp.)
Oxford University Press. 2/6 net.

This collection of educational addresses breathes so fine a spirit that we are glad Mr. Matheson has put them into volume form. There are eight in all; three of them were delivered to various High Schools for Girls. The only criticism we can offer concerns the price. A small volume like this in stiff paper covers ought not to cost so much even in these times. Does it mean that there is no public to which such a book as this can appeal?

Secondary Education after the War. By Sir Samuel Dill. (20 pp.) Educational Co. of Ireland. 6d.

[The inaugural lecture of the Education Society of the Queen's University of Belfast. Interesting especially as a frank recognition by an eminent classical scholar of the fact that classics must play a smaller part in the education of the future. Even the literary and ideal element in education will, he thinks, for a majority, come from the study of modern literature, especially that of England and France.]

The Message, The Messenger, and The Method. By G. Currie Martin, Effie Ryle, and J. H. Wimms. (96 pp.) Headley Bros. 1/- net (paper).

An excellent little book, meant especially for those engaged in "Adult School" work, but applicable to a much wider section of the teaching service, not excluding its professional branches. The more teachers who catch the spirit of the second and third chapters of the book, the better it will be for our schools.

Mental Adjustments. By Frederic Lyman Wells. (xi+331 pp.) Appleton & Co. 2 dollars 50 cents net.

[A volume in the "Conduct of Mind" series edited by Prof. Jastrow. An alienist by profession, Dr. Wells has written an interesting account of the workings of the mind from what may be called broadly the Freudian standpoint. It is thoroughly readable, and may well serve as a useful introduction to a psychology which at least does justice to the emotional depths of the human mind.]

The King's Fishing. By C. Mercier. (50 pp.) Mental Culture Association. 1/3 net.

[A verse rendering of an absurd French description of King George salmon fishing. Whether it was worth while to write the verses or to print them may, perhaps, be doubted. Dr. Mercier's serious prose is more amusing than his humorous verse.]

The Book of the Happy Warrior. By Sir Henry Newbolt. (xiv+284 pp.) Longmans, Green & Co. 6/- net.

[Another of the admirable gift books with which Sir Henry Newbolt has enriched our literature. Would it, we wonder, be possible to produce these books in a form and at a price which would make them accessible to schools?]

Psychological Tests. A Bibliography. Compiled by Helen Boardman. (75 pp.) Bureau of Educational Experiments. New York. 25 cents.

The Bibliography includes the literature of the Binet Simon Scale, to which fifty-six pages are devoted, and that of other Mental Tests, together with a classified Bibliography for Vocational Psychology. An extremely useful compilation.

A Handbook of Nature Study and simple Agricultural Teaching. By E. Thompson. (xi+279 pp.) Longmans. 3/6 net.

[Intended for the Primary Schools of Burmah, and indirectly admirable evidence of what Britain is doing for the Burmese children.]

The Physiology of Food and Economy of Diet. By Wm. Bayliss. (viii+107 pp.) Longmans. 2/- net.

[A much-needed book by a distinguished physiologist.]

The Conduct of the Lesson. By Percival R. Cole. A Study in Children's Interests by T. T. Roberts. Records of the Education Society of the Teachers' College, Sydney. (Nos. 27 and 30.)

A Senior Latin Reader. Compiled by J. Lang, with 82 illustrations, maps, and plans. (vi+236 pp.) Longmans. 3/6 net.

The Catechism on the Bible. By A. H. Walker. With introduction by the Bishop of Oxford. (xv+194 pp.) Longmans, Green & Co. 3/6 net.

A Blackboard Catechism. By W. Fairlie Clarke. (83 pp.) Longmans, Green & Co. 2/- net.

Study of Animal Families in Schools. By Laura B. Garrett. (Bulletin No. 2.)

Instinct in Man. By James Drever. (x+281 pp.) University Press, Cambridge.

The Rockefeller Foundation. Annual Report, 1916.

TRAINING COLLEGE ASSOCIATION.

RETIREMENT OF THE PRESIDENT-ELECT.

The retirement of Canon Wesley Dennis from Training College work will be universally regretted by the members of our Association. Canon Dennis has accepted the living of Cheam, in Surrey, and is already resident in the beautiful old Rectory, amidst charming surroundings. For twenty-three years he has been Principal of St. John's College, Battersea, and during that time he has ruled the College wisely and well. Notwithstanding many other calls upon him, both ecclesiastical and municipal, the College has always had the chief part of his time, and he has served it with whole-hearted devotion. He has left his mark upon it by the erection of many useful additions—library, gymnasium, new dining hall, common room, and science and art rooms. In fact, he has brought it up to the level of modern requirements, and left it thoroughly equipped. But even better than these things, he has evoked a spirit of earnest work and high ideals among his students, which has borne and will bear good fruit in the lives of hundreds of teachers.

As a member of our Association he has given unremitting care and attention to all matters which touch the work of our colleges. His good judgment and sound common sense have been invaluable in the deliberations of our Committee, and in negotiation with the Board of Education. During the last year of his principalship, Canon Dennis has had the novel and somewhat trying experience of presiding over a college in which were gathered together all the available students from the twelve Church of England Colleges for men. The success with which he grappled with this problem makes a worthy conclusion to the work he has done for the College. We do not doubt that he will make his mark at Cheam as he has done at Battersea.

Much as we shall miss his presence among us, he will be followed to his new sphere of work by the good wishes of all in our Association, and we trust that there are many happy years in store for him and Mrs. Dennis in their new home.

The Annual Meeting is fixed for TUESDAY, JANUARY 8TH, 1918 (morning and afternoon), at University College, Gower Street, W.C., in connexion with the Conference Week of Educational Associations. Detailed programme will be sent later to all members.

Minutes of General Committee Meeting, October 12th, 1917.

The following members signed the attendance roll:—Mr. T. Raymont (President), Miss B. Forth (Vice-president), Miss M. M. Allan (Ex-President), Miss F. E. Newman, Miss M. Liberty, Miss S. E. S. Richards, Mr. F. J. R. Hendy, Rev. V. W. Pearson, Prof. A. Henderson, Mr. H. S. Cooke, Rev. Canon Stevenson, Mr. T. P. Holgate, Rev. Canon Blofeld, Rev. D. J. Thomas, Dr. J. F. Unstead, Miss N. Catty, Mr. W. T. Goode, Mr. D. R. Harris, Miss M. Saunders, Miss H. M. Preston, Miss C. G. Luard, Rev. A. M. Aynsley, Rev. H. A. Bren, Mr. A. P. Braddock, Mr. A. Barriball, Miss K. T. Stephenson, Miss L. M. Swinburn, Miss C. T. Cumbebirch, Mr. J. Jones, Mr. J. W. Jarvis, Miss F. Exton, Miss D. Ventham, Miss M. Grey, Mr. J. F. Carr, Miss F. M. Smith, Miss A. J. Litchfield, Miss E. M. Gowan, Miss F. Johnson, Miss A. Lloyd Evans, Miss E. M. Juliam, and the Hon. Secretary.

Apologies for non-attendance were received from:—Miss Dunlop, Miss Mackintosh, Rev. J. R. W. Thomas, Prof. J. A. Green, Rev. R. Hudson, Rev. Preb. E. Hammonds, Miss Newbigin, Miss J. A. Jenkins, Miss A. C. Johnson, Miss S. Hale.

- (1) The Minutes of the last meeting were confirmed.
- (2) The Report of the Representative Sub-Committee was read as follows :—
 - (i) Meeting of March 23rd, 1917.

It was decided that the Mathematics and History Sub-Committees should consist of (a) fourteen specialists, (b) seven members interested in the general and administrative side of the Colleges, and (c) the officials of the Association. Also that a circular letter be sent to each College, explaining the situation, and asking for nominations for the specialist members. The letter to state that the Representative Sub-Committee must take the responsibility of making the final selection. It was decided to ask also whether the College takes the Advanced Course in the subject for which a nomination is made.

It was also decided that the Geography and English Sub-Committees already in existence should continue for another year.

- (ii) Meeting of June 8th, 1917.

—The Sub-Committees for Mathematics and History were decided upon as follow :—

Mathematics.—(a) Prof. T. P. Nunn (Convener), Rev. I. A. Smith, Rev. R. Hudson, Rev. Canon Blofeld, Miss K. T. Stephenson, Miss M. Punnett, Miss S. E. S. Richards.

(b) Rev. W. Adams, Rev. F. Jackson, Mr. H. E. J. Curzon, Dr. Miller, Mr. J. F. Carr, Miss Varley, Miss Stevenson, Miss F. M. Smith, Miss F. Exton, Dr. Marion Richards, Miss McRae, Miss Hopkyns, Miss Holman, Miss Robins.

History.—(a) Miss Luard (Convener), Miss Hardy, Miss Preston, Miss Todhunter, Miss Hawtrey, Canon Stevenson, Miss Raw.

(b) Mr. Potts, Mr. Dent, Prof. Lyttel, Mr. J. W. Jarvis, Miss Mercier, Miss H. M. Davies, Miss Spalding, Miss Bowman, Miss Bell, Miss Grist, Miss F. Johnson, Miss Newbiggin, Miss Swinburn, Miss Williams.

In each case with the officers exofficio.

—Miss Forth was appointed to represent the Association on the National Council for Domestic Studies.

—It was decided to send the following resolution to the Board of Trade :—

“ This Association requests the Government to allow scholars, students and staffs of Schools and Colleges to travel for one double journey per term between the home and the place of education at normal rates in the 3rd class on production at the booking-office of a certificate from the head of the educational institution, on the grounds that the present increase in fares does not result in any appreciable reduction of travelling on the part of the persons concerned, but that it acts as a direct tax on particular branches of education.

It was also resolved to ask the Head Masters Association, the Head Mistresses Association, the Private Schools Association, and the Head Masters Conference, to send this or a similar resolution to the Board of Trade, on a common date to be agreed upon.

—The following resolution was passed, and it was decided to send to the President and Secretary of the Board of Education :—

“ Having regard to the facts—(1) that the efficiency of the Training Colleges depends very largely upon whether the staffs of these Colleges are recruited from the best teachers in the secondary and the elementary schools: (2) that even at present the salaries attached to lectureships in Training Colleges are very frequently not such as would be likely to attract good teachers from secondary or even from elementary schools: and (3) that the tendency of the President of the Board's proposals as regards school

teachers' salaries would be to make it less likely than ever that such teachers would be attracted to the Training Colleges, this Committee resolves:—That it is a matter of grave importance for the teaching profession, the efficiency of which depends so largely upon the efficiency of the Training Colleges, that any scheme for increasing salaries and providing pensions in the case of secondary school teachers shall apply *mutatis mutandis* to the staffs of Training Colleges."

- (3) A letter was read from the Secretary of the "Departmental Committee on Periodical Increases of Salaries in Public Institutions for Higher Education (other than University Institutions)," inviting the Association to suggest the names of not more than three representatives who would be willing to give evidence before the Committee. The following is quoted from the letter:—"Unless your Association expressly desires it, it would meet the needs of the Departmental Committee if the witnesses had freedom to express their views."

It was decided to send in the names of the President, the Woman Vice-President, and the Hon. Secretary.

- (4) The following resolution was moved from the Chair:—

"That Canon Dennis, whose membership of the Association has temporarily lapsed, through the operation of Rule 3 of the present constitution, be invited to re-join the Association as from January 1st, 1918, under Rule III (2) of the new constitution, and to fill the office of President in 1918, in accordance with the desire expressed by the Association in the last election."

After some discussion, the question was raised as to whether Canon Dennis was not still a member of the Association. On this being put to the vote, it was decided in the affirmative, and so the resolution was withdrawn.

- (5) The following nominations were received for 1918:—

For <i>Vice-Presidents</i> :—Miss Christopher.	Miss Lloyd Evans.
Miss Gowan.	Miss Hawtrey.
Miss Luard.	Miss Mercier.
Miss Richards.	Miss Wodehouse.
Rev. Canon Blofeld.	Rev. R. Hudson.
Rev. V. W. Pearson.	

For *Hon. Sec. and Treasurer* :—Major H. E. Griffiths.

- (6) The arrangements for the Annual Meeting on January 8th, 1918 (in connexion with Conference Week), were left in the hands of the Representative Sub-Committee.

- (7) A letter was read from the Board of Education (enclosing another from the Women's Defence Relief Corps) asking for consideration of the question of putting the Final Examination a fortnight earlier than usual, and of shortening the Christmas and Easter vacations accordingly, in order to give women students further opportunity in 1918 of working on the land.

After a long discussion, during which abundant evidence was brought forward that such a change was not necessary, it was decided to inform the Board that the Committee did not think such a change desirable, and, if necessary, that the President, with any other members he may choose, would attend at the Board's office to explain the reasons for this decision.

- (8) The question of adopting the policy of the substitution of a three-year course for the present two-year course was brought up, and a resolution in favour of the change was received from the London Branch of the Association.

It was decided to put the matter down for discussion at the coming Annual Meeting.

NORTHERN BRANCH.

A general meeting of the Branch was held on November 10th, at Leeds University. Seventeen colleges and training departments were represented, viz.: Bingley, Darlington, St. Hild's (Durham), Edgehill (Liverpool); the Municipal Training College, Hull; Municipal T.C., Leeds; Leeds University, Lincoln T.C., the Mather T.C., Manchester; Manchester Municipal Day T.C., Manchester University, Salford T.C., Manchester, Nottingham, Ripon, Sheffield City T.C., Sheffield University, Warrington.

The President (Miss Mercier, of Manchester University) was in the chair.

The chief business was to be the discussion and possible passing of certain resolutions dealing with problems of educational reconstruction. The agenda was a long one, and had been only half covered when it was necessary to adjourn the meeting. It was decided to forward the following resolutions to the secretary of the parent association, urging that they should be brought before the Emergency Committee immediately:—

- (1) Proposed by Prof. Findlay, Manchester University; seconded by Miss Christopher, St. Hild's, Durham:

“That the Board of Education be urged to give grants for the establishment and maintenance of Demonstration and Research Schools under the direct control of the Training Colleges or Training Departments of Universities.”

- (2) Proposed by Mr. Holgate, Leeds Municipal T.C.; seconded by Canon Morley Stevenson, Warrington T.C.:

- i (a) “In order to attract the right types of teachers to Training Colleges, and to retain them, scales of salaries should be in advance of those obtaining in Secondary Schools.”

- (b) “Teachers in Training Colleges should, by means of suitable salaries and special grants in aid, be encouraged and enabled by travel and study to keep themselves thoroughly abreast of current educational thought, and to preserve the freshness of mind and width of outlook which is essential if their work is to be progressive and fruitful.”

- ii “That the Board of Education be urged to impress these views on the Governors of Colleges, and to aid in their fulfilment by immediate substantial grants from the Imperial Exchequer to the Training Colleges for these purposes.”

- (3) Proposed by Mr. Holgate; seconded by Mr. Welpton, Leeds University: “That this Meeting endorses the amendments to the Pension Scheme for Secondary and Technical Teachers of the Departmental Committee (1914), which have been already approved by the various Associations of Secondary, Technical, and Art Teachers.”

The last hour or so of the meeting was spent in discussing questions connected with the problem of securing an adequate supply of fit entrants to Training Colleges. As the gathering had ceased to be representative of the Branch, however, owing to the necessity of catching trains, it was decided not to forward to the Central Association the resolution now passed.

Discussion of these and further questions will be resumed at the next meeting of the Branch, which is fixed for Saturday, March 2nd, at Warrington Training College.

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ACCURACY IN FRENCH FREE COMPOSITION.¹—I.

By E. ALLISON PEERS, M.A.

Modern Language Master, Felsted School.

(I)—Preliminary.

ONE of the most serious charges commonly brought against the direct method of teaching modern languages is that, partly through neglect of Grammar and partly through its insistence on the value of Free Composition, it encourages inaccuracy. It is not my object here to refute that charge: I only remark that, in my own opinion, based on constant practice and experiment, it is absolutely groundless, and that I have never seen the record of any investigations which give it the slightest support. I do know, however, in common with every teacher, that all pupils, on whatever method they are instructed, repeatedly make the same mistakes in their compositions,² and that these mistakes are habitually due, not to ignorance, but (apparently) to pure carelessness or to temporary forgetfulness of a rule known by the class. This phenomenon may be noticed just as often in a class which learns much formal grammar as in one which learns little. The rules (let us say) for the agreement of the past participle are learned on Tuesday night. On Wednesday morning they are reproduced perfectly, and exercises upon them are written correctly by 80% of the pupils. Yet the same form on Thursday, in turning a narrative into the *Passé Indéfini*, or in reproducing a story read in that tense, makes mistake after mistake in the agreement of the past participle, which has only just been learned. Our task, then, to whatever method we adhere, is *to bridge the gulf between the easily-obtained accuracy in ad hoc exercises and the much more desirable accuracy in Free Composition.*³

Of methods at present practised for eradicating these mistakes I only know of three. There is the "happy-go-lucky" method of returning each exercise with corrections, in the hope that they will be inwardly digested; the system of notebooks, by which a pupil writes down and learns the rules which he has broken; and the common but rather reprehensible practice of giving rules broken to be "written out" twenty, fifty, or a hundred times. The first of these methods is no method, and every scientifically-minded teacher will condemn it without more ado. The third, though very occasionally useful for impressing a word or a rule on some pupil's memory, is, to my mind, harmful, if only because the child confuses it mentally with "lines"—i.e., beneficial work with arbitrary punishment. Further, it can be applied only to the worst mistakes made, otherwise all but the best pupils would spend most of their spare time in writing out rules.⁴ The notebook method is undoubtedly the best of the three. Its disadvantages

¹At the beginning of this article I wish to record my indebtedness to Mr. de Glehn, of the Perse School, Cambridge, for the constant help and encouragement which he has given me during the course of these experiments. Indeed, it is possible that I owe to him more than I realize in this connexion, as it was after a series of discussions with him upon the subject of Free Composition that I first devised the "Accuracy Chart."

²Whether "free" or not. Among the many investigations which remain to be made in this field is the important one as to the relative values, both intrinsically and as mental training, of Free Composition and Prose Translation.

³I only use Free Composition for the basis of the experiments because it is the form of composition practised at the school in which they were conducted. The investigations might equally well have been carried out in regard to prose translation, provided that the work was not done from one of the books which give notes at every place where a mistake can possibly occur.

⁴If this seems exaggerated, let the teacher test it by recording the mistakes made by one class week by week, and he will soon see how impossible it is to make the practice into a system.

are that it is difficult to check; that the pupil, though at first impressed by the number of times he repeats his mistakes, soon grows careless about them; that the notes quickly become a long list, incoherent, unclassified; that the pupil neglects the trivial mistakes (the "slips") as being to his mind unimportant; and (this from the experimental standpoint) that there is no chance for the teacher to calculate how far his pupils are improving, and so to perfect the system; or, for that matter, for the pupil himself to take a reasoned interest in his progress.

For the last year, therefore, I have been working at a modification of the notebook system, which I believe to be thoroughly sound in principle,¹ and it is the results of the experiments made during this period which I hope to detail in the present article.

The forms experimented upon—each averaging from twenty to twenty-five boys—may be divided into two groups:—

- (A) The "*Thirds*" or "*Lower School*":—
 Modern III } Average, $14\frac{1}{2}$ - $15\frac{1}{2}$, the classical form
 Classical III } reaching a slightly higher standard.
- (B) The "*Fourths and Fifths*" or "*Upper School*":—
 Classical IV } Average age, $15\frac{1}{2}$ to $16\frac{1}{2}$, each form
 Modern V } reaching a slightly higher standard than
 Classical V } the one immediately before it.

(The names of the forms are slightly altered and the average ages vary so little every term from those given that it has been thought unnecessary to restate them before the account of each term's work.)

(II)—First Two Terms' Records.

To each of these forms were given, in the first term of experiment, "Accuracy Charts" for use in correcting and revising compositions. (See illustrations on next page.)² Horizontally were written the dates of every week-end (Saturday) throughout the term; vertically, the principal mistakes, numbered in sections, which the class had been found to make during the terms preceding. Whenever a corrected composition was returned to the class (once weekly), charts were produced, and the number of mistakes made under each head recorded, together with any possible explanation as to the *kind* of mistake made.³ (A reference to the specimen charts should make this clear.) The section under which each error was to be entered had previously been indicated by a reference sign in the pupil's composition, *ad hoc*. Then, when a new composition was written, the last five minutes of the lesson were spent in revision *with the aid of the chart*, every effort being made to avoid repeating a mistake.⁴

For purposes of experiment the Lower School had fewer "rubrics" than the Upper, the object of this being not to confuse the pupils and, at the same time, to emphasize their principal mistakes. The chief

¹I refrain from delving more deeply into questions of principle here, in order to devote more attention to the experimental work undertaken. Those interested in the subject might care to refer to an article entitled "Accuracy in French Composition," in *Modern Language Teaching* for March, 1918.

²The most convenient size is foolscap; the chart, when doubled, can then usually be kept in the French exercise book. I have tried both larger and smaller sizes, but find this the best.

³It is hardly necessary to say that all pupils were strictly enjoined to write down, not the mistake itself, but the correct rule or form misused.

⁴These efforts did not, of course, include the indication of mistakes by the teacher; what is meant is that pupils were carefully supervised, and great care was taken to secure *methodical* revision—"word by word and line by line."

(a) A Third Form Chart in Second Term of Experiment (Reduced Scale.)

B. JONES	MAY 19	MAY 26	JUNE 2	JUNE 9	JUNE 16	JUNE 23	JUNE 30	JULY 7	JULY 14	JULY 21
1. Tenses (T)	4 1 Pret. for Impf. 3 Pres. for Past	6 4 Pres. for Past. 2 Impf. for Pres.	3 Pres. for Past.	0	2 1 Pres. for Past. 1 Pret. for Impf.	1 PAST INDEF. IN CONV.	0	0	0	1 IMPF. FOR PREFACE TO STORY
2. "Slips" (SL)	7 au du	3 au du	2 AU	0	1 du	0	2 qu'un du.	0	0	1 de l'
3. Inflections (I)	0	0	1 je VAIS	1 il sort	0	0	0	1 nous ALLONS	0	0
4. Agreement (bs. Adj. etc. (A))	0	0	0	1 Adj. & Noun	0	0	0	0	0	0
5. Direct & Indirect objects compared (DIR)	2 il lui dit	2 il dit à Jean	0	0	1 il LUI dit	0	0	0	0	0
6. Il y a / Il y avait (*).										
7. Construction of Verbs (CONST.)	demande qqch A qq'un					prendre à qq'un.				
8. Agreement of Past Participle. (P.P.)		1 with AVOIR		1 with ETRE		2 REFL- EXIVE		1 with ÊTRE		
9. Conjug. of Verbs with Avoir & Être (AV: E)			il est arrivé			Je suis devenu				
10. Special individual mistakes. (New words genders, etc.) *	le palais		la place			-TION fem.		la Baie. la brebis		

The letters in brackets are the "reference signs" used in corrections.

* In practice there were found to be very few important individual mistakes.

(b) The Standard Chart in Third Term of Experiment (Reduced Scale.)

J. H. DIXON V th Form.	OCT. 6	OCT. 13	OCT. 20	OCT. 27	NOV. 3	NOV. 10	NOV. 17	NOV. 24	DEC 1
1 ACCORD. (A)								A	
2 Accordu Participe Passé (P.P.)	1 AVOIR			1 ÊTRE				B	
3 Declinaison. (D)			pour EUX (DIST.)			les régals =		S	
4 Conjugai- son du verbe. (C)		il boit						E	
5 TEMPS. faux emploi (T.F.)	2 Prêt: pour Impf.		1 Passé Indéf			2 Passé antér: QUAND		N	
6 Construction du verbe. (CONSTR)				entrer dans la ville				T	
7 Position et order des Pronoms. (P.O.P.)			VIENS A MOI			Il se rend A EUX.	=		
8 Genre (G)	le serment (MENT)			LE SIGNE				A	
9 Syntaxe (S)		BIEN QUE SUBJ:		il est & c'est (Vai Gram p. 78.)		BIEN QUE SUBJ:		B	
10 Distinctions à faire. (DIST.)			ou, où			la reine le = régne		S	
11 Complé- ments direct et indirect. (DIR.)	Donnez lui qqch.		il lui montra qqch.	il LUI donna qqch.				E	
12 Fautes parti- culières. ✕		Si non	le filet un goujon		porter secours	il se rassit =	Sous le regne de HENRI IV.	N T	le fleuve plus grand que la rivière

It was found after the first term that the Upper School at any rate could quite well use their charts without departing from French, which is the language of the class-room.

purpose of the Lower School charts was to root out eventually *all bad mistakes*,—and to do little else. In the Upper School an additional object was to record as nearly as possible *every mistake*; thus, with the Classical Vth, who seldom perpetrate “howlers,” the chart serves mainly, though not solely, as a kind of notebook. In the Lower School, boys were *encouraged* to use their charts at all times for purposes of reference; it was only *compulsory* to use them, however, after the writing of a new composition.

It will readily be seen that the chart has all the advantages of the notebook for recording errors without any of its defects. After a little practice, the teacher, passing round the class, can check each chart at a glance; the pupil's interest is kept high each week by the possibility of comparing the work done with that of preceding weeks; everything is classified, and any class of error can be given a prominent place at will. Finally, the pupil can see at any time how he is progressing, and the teacher can ascertain the value of the system with the minimum of difficulty.

At the same time, it must be borne in mind that the class-room is not a laboratory, and that conditions beyond the teacher's control must frequently upset his calculations. In conducting this experimental work, I have endeavoured as far as possible to eliminate disturbing factors, as follows:—

(a) *Length, kind, and difficulty of exercise*.—As far as possible, the exercises have all been of one kind, of equal length, and of similar difficulty in any one class each term. Where this has been impossible, the factor has been noted or allowed for.

(b) *Absences*.—All charts have been corrected for absence, by giving to the pupil his average number of mistakes for each lesson missed. But fortunately (I here anticipate) in the third and most important term of experiment, absences have been a negligible quantity.

(c) *Atmosphere and mental state of classes*.—The compositions have usually been written on fixed days of each week; only when some disturbing event, such as an important football match, has occurred, the lesson has been postponed.

(d) *Entering of mistakes*.—A few omissions, whether by master or by pupil, must occasionally slip in, but the greatest care has been taken to prevent omissions by indicating in the margin of each exercise the section under which the entry is to be made: supervision during entries, which are always made in class, has been constant.¹

(e) *New boys*.—The new boy often takes half a term to get used to the system. I see no way of meeting this difficulty other than increasing the attention paid to such boys in class, and this has always been done.

(f) Chart or no chart, there will be in every well-taught class a certain improvement in accuracy as the term goes on. This must always be reckoned with in drawing conclusions.

Just as the new boy takes some time to get used to the system, so it was a full term before every pupil in the classes experimented upon could be said to have made himself familiar with it. Hence I consider

¹At the end of the term charts are consulted in every class, and the rules contravened, words not known, and other notes are carefully copied into the French notebooks, checked and learned once more.

the first two terms' work as preliminary, and the serious investigations as beginning only in the third term.¹ Some results, however, may be quoted as showing what was achieved during the second term of experiment.²

(A)—COLLECTIVE RESULTS.

Modern III.

WEEKS.

		1	2	3	4	5	6	7	8	9	1st Half-term.	2nd Half-term.
ERRORS.	Tense mistakes	52	73	57	26	26	26	37	15	18	221	109
	"Slips" ...	35	34	32	16	20	13	21	15	12	127	71
	Inflections ...	18	21	20	16	8	19	21	17	13	79	74
	Concords ...	56	26	27	31	22	22	25	13	9	151	80
	Total ...	161	154	136	89	76	80 ¹	104 ¹	60	52	578	334

¹I cannot account for this rise.

Classical III.

WEEKS.

		1	2	3	4	5	6	7	8	9	1st Half-term.	2nd Half-term.
ERRORS.	Tense mistakes	47	24	44	41	37	20	30	30	21	174	120
	"Slips" ...	44	10	23	29	20	11	10	14	10	116	55
	Inflections ...	10	7	19	9	13	9	8	8	12	52	43
	Concords ...	10	6	7	10	6	5	4	11	5	36	28
	Total ...	111	47 ¹	93	89	76	45	52 ²	63 ²	48	378	246

¹This was known beforehand to be out of the reckoning, because the exercise had to be curtailed.

²This rise may be due to the fact that a new kind of exercise was practised during the last three weeks.

Classical IV. In this form less detailed calculations were made, on account of absences.

WEEKS.

		1 to 3	4 to 6	7 to 9	Total.
ERRORS.	Tense mistakes	67	51	24	142
	"Slips" ...	30	22	16	68
	Inflections ...	55	27	13	95
	Concords ...	17	13	11	41
	Total ...	169	113	64	346

(While not wishing to attach too much importance to these preliminary collective results, I should wish to point out that the conclusions to be drawn from them will be found to agree in general with those which were drawn later from the third term's results, page 172.)

¹Especially as the first term's work was not a full one, and was much marred by illness.

²These are admittedly some of the best, but improvement took place in every class: in the worst, however, it was spasmodic. In studying these figures, the reader should observe that one mistake repeated in each exercise counted only *once* (*le enfant* and *le argent*). But if any distinction could be observed between the two mistakes, *two* mistakes were regularly counted. E.g., six preterites for six imperfects, except in a string of similar phrases, counted as six mistakes. This seems artificial, but was pretty generally understood.

(B)—INDIVIDUAL RESULTS.

While such results as these may be more convincing to the statistician than individual results, the average teacher will probably be more influenced by the latter. I therefore append a few, chosen at random from the records of the Modern III:—

- A, a weak boy, made 6, 5, 4 "Slips" respectively during the first three weeks; his later totals were 1, 2, 1, 1, 2, 0.
- B, a new boy, arrived a week late. His totals for tense mistakes were: 11, 3, 1, 1, 0, 2, 0, 0. After the second week he never repeated the same mistake.
- C, the weakest boy in the class, made the first sensible improvement for five terms. His combined weekly totals for the four errors classified above were: 11, 9, 12, 5, 3, 7, 6, 5, 4; or, fortnightly, 20, 17, 10, 11, 8 (average).
- D and E, the next weakest boys, had totals:—
D: 10, 6, 8, 6, 2, 4, 7, 3, 1.
E: 12, 14, 6, 8, 9, 5, 4, 7, 3.

When a boy was observed to have repeated any mistake he was told to draw the outline of the succeeding week's place in the proper section with red pencil. It was rare to find the mistake repeated again, either that week or throughout the term. In the third term, as will be seen, calculations under that head were made.

(iii)—Third Term's Records.

When once the boys were familiar with the system, progress was easy, and, in spite of a large entry of new boys in the third term, it was decided to carry on experiments on as uniform a basis as possible. The same "rubrics" were therefore adopted in every form, eleven new and more comprehensive titles being chosen.¹ The twelfth division was used by each form, especially in the Upper School, (for notes see illustration).

The only modifying factors which call for notice in this term's work are:—

- (1) The habitually small number of absences and the almost complete standardization of external conditions.
- (2) The unusual influx of new boys, and the large number of mistakes which always characterizes the first term of an academic year.

These new factors were probably mutually destructive, so that the results obtained this term may be considered normal. It will be noticed that far fewer mistakes were made in each form than in the second term, although more classes of error are recorded. This, though I take it to be mainly due to the increase in accuracy after two terms of the chart system, may partly be accounted for by the higher standard throughout the school caused by comparatively few promotions having been made.

¹The new "rubrics" were the result of the criticism by friends that the old ones were not sufficiently "scientific"—i.e., they left much ground uncovered and laid too much stress on isolated points. The third term's work, however, decided me in favour of the unscientific but infinitely more practical scheme, at least in the lower forms. Small mistakes like "de le," "que une," repeatedly slipped through the meshes of the net spread to catch them, whereas the preceding term's figures show a very clear decline in them. After all, the aim of the chart is to eradicate faults actually made, not those which *may* be made.

(A)—COLLECTIVE RESULTS.

Modern III.

		WEEKS.										1st Half-term.	2nd Half-term.
		1	2	3	4	5	6	7	8	9	10		
ERRORS.	Concord (except past participle)	7	30	23	21	9	7	2	3	3	0	90	15
	Agreement of past participle	0	7 ¹	2	9	2	0	0	0	0	4 ²	20	4
	Past tenses confused...	34	23	26	25	18	20	10	13	14	14	126	71
	"Dist." (see chart)	0	5	1	1	0	2	0	0	0	1	7	3
	"Dir." (see chart)	4	3	5	0	0	6	2	2	3	2	12	15
Total		45	68	57	56	29	35	14	18	20	21	255	108

¹All but two of the past participles were identical.²This increase was undoubtedly due to the occurrence of many past indefinites in the narrative.

Eight boys only were new to the system. The results are certainly better than last term (cf. p. 170).

Points to be noted :—

- (1) Steady decline from 2nd week to 7th inclusive, helped by a remarkable drop after the 4th week.
- (2) Remarkable decline in false concords and past participle mistakes.
- (3) Past tense mistakes are reduced by nearly one-half.
- (4) No success has been gained under "Dir."

Classical III.

		WEEKS.										1st Half-term.	2nd Half-term.
		1	2	3	4	5	6	7	8	9	10		
ERRORS.	Concord ...	17	13	4	2	4	0	1	0	0	3 ¹	40	4
	Agreement of past participle	3	7	0	2	6	0	0	0	1	1	18	2
	Past tenses confused...	20	40 ²	24	36	19	29	24	21	22	8	139	104
	"Dist." ...	2	1	2	1	1	2	1	0	0	0	7	3
	"Dir." ...	7	3	3	3	4	2	0	0	0	1	20	3
Total		49	64	33	44	34	33	26	21	23	13	224	116

¹Due to a misunderstanding of something said in class.²One boy had 11 mistakes.

Exactly one-half of these boys were new to the chart system. The results are again better than last term's (cf. p. 170).

Points to be noted :—

- (1) Steady decline, with the exception of one week, from 4th week to 10th.
- (2) As in Modern III, a striking decline in false concords and past participle mistakes.
- (3) Past tense mistakes decline less rapidly, but
- (4) Mistakes of Direct Object decrease very much.

Classical IV.

WEEKS.

ERRORS.

	1	2	3	4	5	6	7	8	9	10	1st Half-term.	2nd Half-term.
Concords ...	10	6	3	3	4	1	1	4	4	5	26	15
Agreement of past participle	11	0	0	1	0	2	0	0	0	1	12	3
Careless mistakes of declension ...	3	3	4	0	2	4	0	1	0	0	12	5
Careless mistakes of inflexion ...	0	1	1	2	1	1	0	1	0	0	5	2
Past tenses confused ...	46	21	18	16	15	14	12	9	12	11	116	58
"Dist." ...	1	3	2	1	1	0	0	0	0	0	8	0
"Dir." ...	0	3	1	0	4	0	1	0	2	3	8	6
Total ...	71	37	29	23	27	22	14	15	18	20	187	89

Nine boys were new to the system. The results are, at least, as good as last term's.

Points to be noted :—

- (1) The decline is less regular; there is a notable drop after the first week, and thence onwards the totals remain on the same low level. The last four weeks, however, are distinctly better than any other four weeks of the term.
- (2) Past tense mistakes are reduced by exactly one-half; the total decline also is by about 50%. Concords (including past participles) decline from 38 to 18.
- (3) Where few mistakes are made the statistics are not of much value. Hence it will be better to concentrate on past tense and other popular mistakes in the future.

Modern V.

WEEKS.

ERRORS.

	1	2	3	4	5	6	7	8	9	10	1st Half-term.	2nd Half-term.
Concords ...		1	1	6	0	1	3	2	3	3	9	11
Agreement of past participle		3	0	3	1	0	2	1	0	2	7	5
Careless mistakes of declension ...		3	5	1	2	2	1	1	3	2	12	8
Careless mistakes of inflexion ...		3	0	2	1	1	0	1	5	2	7	8
Past tenses confused ...		37	14	10	11	11	8	15	9	3	78	40
"Dist." ...		1	0	0	1	0	0	0	1	1	2	2
"Dir." ...		11	1	3	1	3	2	1	0	1	18	5
Total ...		59	21	25	17	18	16	21	21	14	133	79

A form of only 16 boys. Eight had had no experience of chart-work, but with these boys, since they are older, this factor has less importance.

Points to be noted :—

- (1) As in Classical IV, there is a great drop in inaccuracy after the first week's work, and thereafter the totals remain low.
- (2) In past tenses the mistakes are again reduced by 50%; under the last head the success of the chart is even more marked. Apart from these headings, few mistakes are made, and it seems better, therefore, in the future to pay more attention to them.

Classical V.

WEEKS.

ERRORS.												1st Half-term.	2nd Half-term.
		1	2	3	4	5	6	7	8	9	10		
	Concords ...	3	7	2	7	1	4	5	1	0	No work could be done during this week.	19	11
	Agreement of past participle	2	0	0	0	0	0	2	1	0		2	3
	Careless mistakes of declension ...	2	2	1	4	3	0	0	4	3		10	9
	Careless mistakes of inflexion ...	2	3	8	4	2	2	2	1	7		18	13
	Past tenses confused ...	25	24	33	26	8	14	9	7	8		112	42
	"Dist." ...	0	0	0	0	0	1	0	0	0		0	1
	"Dir." ...	1	1	1	0	2	0	0	0	1		4	2
	Total ...	35	37	45	41	16	21	18	14	19		165	81

Nineteen boys. Only six were new to the system. This form has only two lessons weekly, so that "charting" has often to be done without proper supervision—i.e., during preparation. This want of time, I think, accounts for the rather disappointing results.

Points to be noted :—

- (1) The decline in the total number of mistakes is almost entirely due to the great decline in past tense mistakes.
- (2) The "accuracy curve," if plotted, would be found to resemble that of Modern III; it would be marked by a steep descent after the fourth week.

General Conclusions from Collective Totals.

It will probably be agreed from a consideration of the above tables that the chart-system has justified itself in every form, and especially in the Thirds. Several mistakes here have been practically eradicated, as far as the term under consideration is concerned.

The *Past Tense mistakes* decline in every form very noticeably, but still remain a most serious problem.¹ Hence in the fourth term's charts they are given a much more important place. The results of this I hope to set out in the next issue.

The *Rubrics*, as explained on page 171 (note), must be practical and not necessarily comprehensive in character. They will normally

¹It is made more complicated by the undoubted fact that a large proportion of these mistakes is due, not to carelessness, but to errors of judgment—e.g., failure to realize the relative importance of various verbs in the narrative, and hence misplacement of preterite and imperfect.

be different in different classes, according to the mistakes made the term before, though for purposes of experiment only they must be standardized.

In the Upper School, when once a high standard of accuracy has been reached, the charts may be further modified to serve as a kind of notebook. This matter, however, is beyond the scope of the present article.

Method of decline.—Several forms exhibit a marked tendency (which can also be noticed to some extent in the first and second terms' results) to decline in a particular way—viz., by a rapid drop *either* after the first week *or* at the end of about a month. The first of these symptoms cannot be due to carelessness at the beginning of a term, for the initial chart-exercise is never written until at least a fortnight after the term has begun and other exercises have been written previously but not "chart"-ed. In no case when the lower level has been reached does it rise again appreciably before end of term. It seems as if the sudden decline, though hard to account for, is a phenomenon to be reckoned with, and a very encouraging one.

(B)—INDIVIDUAL RESULTS.

Examples of individuals who had benefited from the chart system have been quoted on page 171. I refrain from filling up space with further examples, which could be taken from the records of every form. The "Red Ring" modification (page 171), however, is interesting. In Classical V charts, of 15 spaces outlined in red, 12 are empty; in Classical IV, 34 out of 43 are empty; in Modern III, 44 out of 73. The other forms have only occasional spaces marked in this way.

Repetition of mistakes.—All the charts were gone through methodically at the end of this term, and every instance of repetition of the same mistake during the term was noted, together with the interval in weeks which separated the repetition (or repetitions) from the original mistake. The results seem at first rather disappointing, for in all five forms only 19 boys have no repetitions at all. But when one reflects how many cases of repetition of mistakes the charts must have saved, the dominant thought is only this: how can such repetitions be more strenuously guarded against next term? Part of the next article will be devoted to a consideration of this problem and an exposition of the precautions taken to meet it.

(To be continued.)

OUR COMPARTMENTAL HABITS.

BY GERALDINE E. HODGSON, Litt.D.

Whenever people have leisure from considering our diurnal war conditions to think of post-war days, the air rings with the word "reconstruction." While plans jostle each other, we are assured that unless the greatest care is taken, we shall have a revolution. Whether care has ever prevented a revolution may be doubted: it is a tenable proposition that foresight might be more apt and effectual.

We live in an era of speculation and argument: it is hard indeed to find a fundamental proposition—outside mathematics—to which all or even a large majority will subscribe. Even so, perhaps a tolerable number of us may admit that one of the surest avenues to national well-being is the provision of opportunity for every one to have a genuine chance of doing the work he most prefers, and for which he is, all his capacities being duly reckoned up, best fitted.

A very large part of our present unrest is due, and rightly due, to uncongenial work carried on amid circumstances of poverty, monotony, and even misery, from which multitudes of our fellow men and women have no possible means of escape; all of which, in turn, arises from the dehumanizing of large tracts of our national life. The nineteenth century, through causes too well known to require exposition here, saw a revolution in industrial conditions and methods: the old human relationship of a "master," working among his "men," was exchanged for a Factory, run too often by an unseen, unknown capitalist, and filled with "hands" whose lives and happiness were at the mercy of unlimited and uncontrolled competition. To complete the disaster, handwork was largely displaced by machinery.

Those who jib at the 'inhumanity' of Aristotle's dictum, "It is evident then that there is a class of persons, some of whom are naturally free, and the others naturally slaves, persons for whom the condition of slavery is alike expedient and just,"¹ may well meditate on the lifelong position of many persons in England, doomed to the performance of one monotonous, mechanical process, on a portion of a product, which product they never make in its entirety and possibly never see, and all that for remuneration which provides neither reasonable comfort in the present nor provision for the future, and whose very continuance is highly precarious. The lot of a well fed and housed Athenian "slave" might easily seem to offer superior advantages over such conditions, which are neither exaggerated nor rare. The one important argument on the theoretical side is that freedom in choice of occupation might issue in overstocking some and understocking other employments. First, that is and must be a mere hypothesis, since the experiment has not been made; secondly, all individual freedom is, in any organized community, limited by the real proved needs and welfare of the whole.

To secure a beneficent measure of such freedom in a small community should not be difficult. Had tiny "City-States" like Athens or Lacedæmon really had the will, the way might not improbably have been found. Yet, clutched and cramped by the obsession of "natural slavery," they lacked that will. In a highly

¹ *Politics*, Bk. 1, Ch. 5.

complicated modern state, the difficulty of providing freedom of choice in occupation for every one is obviously immense, if not insuperable. Even if it should, on trial, prove the latter, the fact that we cannot do all we desire can never justify us in not doing what we can. Because, through the nature of things, we may always fail to give a real chance to all, we are not at liberty to fold our hands and allow competition, need and greed to work their worst on a countless multitude.

If we face the difficulty, there are gleams of hope and possibility. In the first place, not everyone has narrowly specialized "bent." For instance, provided that a literary man is not forced into some branch of positive or mechanical science, or the scientific condemned to literary criticism, both may spend a passably happy life in some of the many branches of the humanities or the sciences, even though a stepmotherly fate may keep them out of their "only love." Where an individual eschews, and would be thoroughly wretched in, any and every sedentary occupation mewed up in urban surroundings, he may be entirely willing to fill one of several rôles in the country, and be happy so doing.

The first step is to bring about two changes. First, we need a more general recognition of the fact that the educator's function does not end with instruction, nor even with that *plus* "character-forming"; but most emphatically includes information, guidance, suggestion and advice about that educated's life-work. The second, quite as important, is even more difficult to achieve, viz., the collection and dissemination of facts relating to the nation's future needs in the various spheres of national activity, so far as these can be, even approximately, foreseen and gauged. In other words, the problem is two-sided: a given teacher needs to recognize his duty to the child concerning that child's life-work, to know the child's capacity, and also what are the probable future openings suited to it.

It is easy enough to try to counter such proposals with the common stock arguments about the improvidence of the poor, and the bad quality of their work; but it is less easy to prove that their better-off critics would, in their circumstances of starved opportunity and thwarted desire, do better. An uncongenial task of unaltering and unalterable dullness is not the best forger of skilled workmen. I am entering no plea for any Primrose Path of dalliance and self-indulgence: I know that only effort edges a blade, that only some measure of wholesome drudgery can command fine achievement. But effort is wasted on a detested result, drudgery thrown away on dull means to a duller end.

Moreover, uncongeniality, drabness and monotony are not absolute, but quantities relative to temperament and personality. If anyone will argue that not a few necessary occupations are inherently dull and monotonous, and that someone must nevertheless perform them, then we do well to remember that Nature has provided those temperaments whose true peace lies in effortless sameness, whose highest joy is centred in doing over and over that which demands no originality, and only a minimum of listless thought. The same world can find room and use for the race horse and the tortoise, but it is sad waste to let them change jobs. It is the matching of worker to task, the equation of the individual's gifts to the nation's needs which is urged and advocated here. That it is difficult is neither here nor there. England has been nurtured

and has grown great—even if talk about greatness be out of fashion in some quarters—on difficulty: she can scarcely afford now to sink into facile and inglorious ease, and that at the expense of a large and not the worst part of her children.

Already, there is an outcry against bureaucracy: should the constant promulgation of rules and orders increase, the outcry may easily grow serious. But if when, or before, the war comes to an end, Boards of various sorts provided vital information in a practical form instead of quite so many commands, they might conceivably win at first a grumpy respect, and eventually some measure of genuine trust and regard.

"Every parent must bear in memory that he is more bound to his country than to his child. . . And therefore parents in disposing of their children may upon good warrant surrender their interest to the general consideration of their common country . . . if their country say . . . I pray thee good parent have patience and appoint some other course for thy child, there be many good means to live by, besides the book, and I will be thy child's friend, if thou wilt fit in some order for me . . . *because each trade must be furnished, to perform all duties belonging to all parts.*"¹ As long ago as 1581, one schoolmaster had grasped the very centre of the problem, viz., the duty of the individual to the State, and the duty of the State to the individuals, severally and together.

"Each trade must be furnished." That was one essential truth: the other was that "Wits well sorted be most civil. . . Again, Wits misplaced most unquiet and seditious."²

If all this is to be achieved,—and unless it be, the unrest consequent on choked capacities and stunted lives will doubtless increase to the nation's detriment, perhaps to its ruin—then some means must be found of bringing about closer co-operation between the educational, agricultural, industrial and professional parts of our national life. We must abandon our compartmental habits and let dissimilars meet, actually meet; teachers and civil servants, captains of industry and parents, theorists and 'practical' persons.

Much can be and is said against conferences: their worst fault, perhaps, is one insufficiently recognized, that they are never what they are called. Whatever they do, they do not "confer"; they mostly struggle to maintain a patient exterior while a few pre-arranged speakers breathlessly attempt to compress matters of moment into a swift five or ten minutes.

If the heads and at least a selection of those which antithesis must call tails of the Teaching Profession could meet even some members of the Boards of Education, Trade and Agriculture, and could be reinforced by representatives of the Learned Professions and of the organized Societies of industrial and agricultural workers, and if they could really 'confer,' not listen to star performances, could discuss 'till they really grasped and understood something of each other's points of view, then our post-war position might turn out a genuine reconstruction.

We have had centuries of compartmental tinkering and experiments with individual fads. It may be time for the nation to say "each trade must be furnished," "wits sorted be most civil," and having said it to find the means of carrying these axioms into daily and lasting practice.

¹ *The Positions*, Ch. 7. Richard Mulcaster.

² *Ibid*, Ch. 36.

EARLY ADVOCACY OF SCIENCE-TEACHING.¹

By PROFESSOR FOSTER WATSON.

One by one the earlier writers, who were the pioneers of science-teaching in the schools, become accessible, and often so quietly do they make their appearance on the scene that they are with us, or at least near us, some time before we stretch forward our hand to welcome them. A recent volume of this type comes to us from the United States, viz., the *Christianopolis* of Johann Valentin Andreae, published at Strasburg in 1619. The present edition does not contain the Latin text, but consists of a translation into English by Prof. F. E. Held, of Ohio, U.S.A., together with a very interesting sketch of 125 pages of early educational Utopias, including Thomas More's *Utopia*, Campanella's *Civitas Solis*, Francis Bacon's *New Atlantis*, Samuel Gott's *Nova Solyma*, in their points of connexion and comparison with Andreae's *Christianopolis*, and a particularly interesting discussion of the disciples and followers of Andreae. It has long been understood that Andreae was one of the sources of John Amos Comenius, in his *Didactica Magna*. Only very occasionally has the relation been traced between Andreae and Samuel Hartlib and John Dury. Probably the most important contemporary account, in English, of these early advocates of science teaching is one which Prof. Held has curiously managed to overlook in his comprehensive introduction and otherwise excellent bibliography. We refer to that valuable *Diary and Correspondence* of Dr. John Worthington, Master of Jesus College, Cambridge, 1650—1660 (Chatham Society, 1847), one of the best of contemporary sources for the beginnings of the movements which led to the foundation of the Royal Society. Nevertheless, Professor Held presents a good summary of Robert Boyle's influence in the dissemination of science, of the Invisible College, of the Philosophical College, and of the relation of the Royal Society to Continental academies, with a view to affording material for the consideration of the relation of J. V. Andreae to the whole English scientific movement, and especially to the problem of the inclusion of science-teaching in educational reforms. It is, of course, very difficult to determine with certainty the extent of direct borrowing when ideas in a particular direction are beginning to be "in the air." Prof. Held contributes a comparison of the much neglected but remarkable *Nova Solyma* (1648), ascribed by Walter Begley (its enterprising translator (in 1902) from the original Latin in which the book was written) to John Milton, but since, on excellent grounds, traced to a much less well-known author, Samuel Gott. Few books give a better insight into the Puritan educational ideals, of the best kind, than the *Nova Solyma*, and although it cannot be maintained that Milton wrote the book, we may readily grant the praise that *he might have been* its author, if we were to judge by the subject-matter of the education proposed and the spirit of the teaching. The *Nova Solyma* is not distinctively devoted to the study of science, but it is insistent on the appeal to nature. The tutor tells the visitor that he wishes all

Christianopolis. An ideal State of the 17th century. Translated from the Latin of Johann Valentin Andreae, with an Historical Introduction. By F. E. HELD. New York: Oxford University Press. London: H. Milford. [Pp. 287.] Price 5/- net.

pupils "to become philosophers, and adepts in the chemistry of nature." The Puritan point of view (of no slight importance in tracing the history of the development of science-teaching) is disclosed in the *Nova Solyma*. "The special advantage of natural science is to rise from nature, to nature's God, tracing His footsteps everywhere therein." Prof. Held is concerned to show that the views of the *Nova Solyma* bear so close a resemblance to those of Andreae's *Christianopolis* that presumably the English writer must have consulted the latter work. Anyway, it is most valuable to have brought back to our minds the probability that the beginnings of the scientific development in the 17th century, and suggestions for the inclusion of science in the student's curriculum, need investigation from the side of Continental sources, as well as from Francis Bacon and other English writers. The suggestions of the international intermediaries of the progressive foreign thought in the persons of Sir Henry Wotton, Casubon, Weckherlin, Toby Matthew, require some criticism, but such suggestions are undoubtedly in the right direction.

The whole group of social romances which are based upon voyages of discovery are of the first importance in tracing the development of science-teaching. Discoveries in new countries, across the Atlantic, led to the enhanced interest in investigation (for comparison or contrast) into nature, nearer home, and actually in our own country, and this transference of the spirit of discovery of foreign lands to the problems of intellectual investigation and research is nowhere more clearly marked than in Francis Bacon's *New Atlantis*. Prof. Held is convinced that Bacon received ideas or suggestions from Andreae's *Christianopolis*. A discussion of dates becomes inevitable. The *Christianopolis* was published in 1619. What is the date of the *New Atlantis*? Dr. S. R. Gardiner places the date of composition before 1607. This date, however, has been disputed by Prof. G. C. Moore Smith, and Dr. Gardiner eventually accepted the criticism as convincing, and it is, therefore, on the whole, apparently probable that the *New Atlantis* was not written till about 1623, which is later than the publication of the *Christianopolis*. The analogies between the *Christianopolis* and the *New Atlantis* become therefore alive with interest. The parallels are certainly instructive. By including for consideration another work of Andreae besides the *Christianopolis*, the *Fama Fraternitatis* (as yet untranslated), Prof. Held is able to draw attention to Andreae's "brotherhood of free men through whom a volume of knowledge might be collected of all that men could hope for." Prof. Held tells us "the College is called that of the Holy Spirit. Its members travel abroad to learn what they can in foreign countries, but return upon a set date each year to the College to report. . . . These are the essentials of the *Fama*, and it would appear also, the elements of Bacon's College of Six Days."

We can only hope that Prof. Held will now give us a translation of the *Fama Fraternitatis*, for, in some respects this work is of more importance than the *Christianopolis* at any rate, for the consideration of the points of contact with Francis Bacon. Moreover, this book of Andreae, we are told, "was published a decade before the *New Atlantis* was composed, and circulated as early as 1610. Still, the *Christianopolis* makes the striking suggestion of an

Academy or College in which natural science, and the accompanying laboratories, museums, instrument-rooms, and garden, are a constituent part of the design.

Among the topics of treatment are the Laboratory "dedicated to chemical science and fitted with the most ingenious ovens and with contrivances for uniting and dissolving substances. . . . Whatever has been dug out and extracted from the bowels of nature by the industry of the ancients, is here subjected to close examination, that we may know whether nature has been truly and faithfully opened to us. . . ." The pharmacy contains the most careful selection of drugs in the world. There is a dissecting laboratory for anatomy. A hall of physics has a demonstrator and illustrative material. There is a mathematical instrument room. Andreae declares that without mathematics no one is really educated. There is a good deal that is mystical associated with what one may call Andreae's natural sciences. But the fact remains that John Valentine Andreae urged in his *Christianopolis* that education should include observation and investigation in the world of nature, and the active exercise of mental powers on subjects connected with nature not included in the grammar school curriculum.

We recognize the value of such work as this of Prof. Held. His particular conclusions require examination, but the presentation, for the first time, in English, of the *Christianopolis* of J. V. Andreae is a distinct service in the re-tracing of the origins of science-teaching. Andreae is now *en evidence*, as well as the results of Prof. Held's historical and critical study, and for those interested in following the course of the development of academic curricula, particularly of scientific subjects, there will be no excuse for leaving Andreae out of his due perspective in the historical account. The period preceding the foundation of the Royal Society needs all the light that can be thrown upon it. Particularly we need to realize that it was part of the general stir in man's mind, both abroad as well as at home. It is on the side of the foreign advocacy of science-teaching that we are usually most to seek.

THE PRACTICAL TRAINING OF THE TEACHER: AN EXPERIMENT.

By FLORENCE A. WOOD, Home and Colonial Training College,
Wood Green.

"Genius is like the fabled tree of Teneriffe, whose branches discharged showers of refreshing water, and *the mission of criticism should be to shake the branches*. At the present day it more resembles a savage striving to hew down the noble tree to the roots."
—*Mazzini*.

No originality can be claimed for the idea underlying this piece of work, but the present situation seemed to justify a more systematic effort in the direction of what may be called "after-care" of the Students who leave Training Colleges. Opportunities for their continued education in matters professional have always been scanty enough, and now, for some years, they may diminish to vanishing point. Present practice in regard to criticism during training appears, on the whole, content to leave it mainly destructive, and as the work of other people. Experience stiffened by enquiry and by deliberate experiment reveals the purely transitory effect of such 'criticism.' If the young teacher can go out with analysis of the day's or week's performance as an ingrained habit, we shall not only fill existing Summer Schools but be hard put to it to cope with the increased demand for them, and, later, for their ultimate outcome—a return, after a period of years, for further training. Then other things will happen—without the need for legislation.

The professional training at Wood Green has followed normal lines. It has been carried out in four pieces, two in the First and two in the Second Year. Three of these are practices proper—(a) A week during the first term of residence, (b) a fortnight towards the close of the First Year, these two being linked (especially for weak students) by periods, varying from a few days to a few weeks, of extra work in School, whether prescribed or voluntary; (c) Three weeks in the Second Year, closing, just before Easter, with the Inspection; (d) Group Criticisms, a minimum of three for each student, extending throughout the Second Year until within a month of leaving.

It should be added that there are no Demonstration or Practising Schools under full control, but that some thirty departments, under four L.E.A., give hospitality for both purposes.

The records kept in connexion with these are the usual Notes of Lessons, Child Observations (supplemented by holiday work where opportunity offers) and special reports on Schools or Institutions visited for the purpose of observation.

Three classes have, in whole or part, worked out the plan and may be called for convenience A (1914-16), B (1915-17), C (1916-18). The experiment opened with A who, in September, 1915, when group Criticisms began, were asked to write, later in the day on which the lessons were given, and *without consulting anyone*, their opinions on their own performance. This comment was to be handed to the College Critic before the group discussion on the following day. The aim of the plan was not dilated on at this stage.

The exercise was taken quite seriously, and the following is a good average example of the comment made. It should be noted that, throughout, the comments are given as they were made, and without the Method Supervisor's or College Critics' comments and suggestions:—

Standard III. Junior Mixed. The Buds of Trees.

"The lesson which I proposed to take could quite well have occupied three or even four lessons—or with a teacher's own class the ground would have been better covered in 'ten minutes' observations supplemented by nature walks. I did not succeed in bringing out clearly enough the connexion between a bulb and a bud. It would have been better had I been able to provide each child with a terminal horse-chestnut bud. More opportunity should have been given for the children to ask questions."

No inspection on any large scale was made until all had given one lesson. A general survey then revealed the fact that though some twenty per cent. shewed comment that might be serviceable, the large majority contained an explanatory or defensive element, to the exclusion of anything critical. On the whole, though the remarks were sometimes apt to the points raised by the critics, there was no evidence of actual collusion. It is very difficult, in a residential institution for women, to avoid hearing what one's neighbours think. After this review the class was called together for half an hour and a short pronouncement made. This amounted to pointing out that though the exercise was called 'Self-Criticism,' few had arrived at it. Progress was again reported at Christmas, and a slight improvement was evident. By the final practice, March, 1916, each student in Class A had worked two of these exercises and listened to College and Student Critics' comments on some thirty such. The only new instruction was that a time should be set apart each evening of the practice for this exercise, and that the comments should be entered opposite the lesson to which they referred. College Critics' comments were to be entered separately and labelled as such.

Inspection at the close of the practice confirmed impressions gathered during its progress, viz., that the work was *far less well done than in the group criticisms*.

The following is a good representative of the more hopeful exercises:—

Std. III. Senior Mixed—Series on 'The Highlands of Scotland.'

"I found the giving of verbal descriptions of mountains rather difficult. I know the word 'beautiful' occurred far too often. Still the children evidently appreciated them; so since they appeal to children, and help them in expression, for the good of the class and for my own good, I shall introduce descriptions as often as possible to get practice in them."

(H.M.I. saw this and added a helpful note on the situation.)

No suggestion was made to this class on leaving that the practice should be continued, and in the letters from some fifty per cent. of them which deal at all with professional matters, there is no evidence that anyone has done so.

Class B (1915-17) were, of deliberate intention, allowed to pass through their first practice without trying the plan, and those who

did extra teaching before the end of the first year, were likewise left free. In June, 1916, as the Second Year Students had discussed the subject quite openly, it seemed justifiable to make some preliminary statement before the First Year (Class B) began. They were told to call the thing 'comment,' not 'self-criticism,' and advised that they would review and write *under supervision but without assistance* at a set time each evening.

The results were not unpromising, the following being fairly representative of the better exercises, of which there were about 30 per cent. :—

Story Transition Class. Hereward the Wake, Part I.

"The latter part of this lesson did not interest the children as much as the first. I hurried too much over Step II which the children seemed to enjoy: consequently I was obliged to make Step III last about ten minutes; the children do not seem to be attracted so much by descriptions of scenes as by facts. I might have let the children make a model of the Fen country with sand, rushes, etc., in the big sand tray.

"Part II. The class teacher asked the children to illustrate this story on Thursday: the result was that half the class reproduced my illustration. From this I gather that an illustration for a story cramps the child's imagination: instead of forming their own mental picture, that of the teacher is imprinted in their minds."

Class B carried on their practice into the group Criticisms which began the following September, 1916. The first of these were better, but a trace of staleness and tendency to conventional treatment became evident later, which led to the adoption of the device (since retained) of having an informal *criticism of criticisms* in class twice a term. The following was fairly typical:—

The Lake District. Std. III. Girls.

"The plan of flooding the model with water did not work well, as the water ran off almost immediately. This was anticipated, but I had to use water as I was not free to choose a substitute. Coloured sand was suggested had my choice been free. The model was tilted slightly towards the class. When I flooded it I ought to have placed it flat, as the water would have run off less quickly. I was not sufficiently well acquainted with the position of each lake, so—at first—I put Crummock Water in the wrong place on my B.B. diagram. I recognized this and corrected it later. I think I muddled the children somewhat by not writing the word 'Helvellyn' by the part of the diagram which represented that mountain. I wrote it so near to Shap Fell that they had some difficulty in distinguishing the one from the other when they came to the model. I sometimes stumbled when I was talking and once I made an incoherent (?) statement, 'Those behind mustn't stand up or those in front can't see.' I think there was rather too much noise at the end of the lesson, when I had one section discussing the model while the other two sections looked at the picture postcards and views."

The final practice of Class B (March, 1917) had a special feature which it is necessary to mention. A suggestion was made from a quarter whence it could not be ignored, that *all* taking Advanced Courses should try to specialize in those subjects, and, as far as possible, this was arranged. The results were what might have

been expected, but there was a by-product which was of service, in that all who chose (some 50%) wrote a separate comment on the whole of their Special Course, some of which were most revealing not only in relation to the question of self-criticism, but incidentally as to the unwisdom of premature specializing.

The following are typical:—

Ordinary Course, Std. VII. Boys. Elementary Science—Levers.

“The boys were rather slow at drawing conclusions from the table of results (of problems set in the previous lesson), but this was probably due to their inaccuracy. They were slow, too, in realizing that in order to lift the greatest weight with the least effort, the fulcrum should be very near the weight. The teacher tried to get the boys to realize this by reasoning it out from the facts they knew. When once they did grasp this, they were very quick at giving examples of the use of levers in practical work. They gave detailed accounts of the method used to get derailed tram-cars back again, and shewed great keenness when the teacher suggested that they should investigate, if possible, the construction of various weighing machines they wanted to know about. Teacher felt all through the lesson the need for practical experience in the use and value of scientific apparatus. The lesson had been rather a nightmare to the teacher. It went off quite well, but, underneath it all, there was a feeling that if the boys should probe deeper, teacher would have no *experience* with which to meet them. Teacher feels that much more might have been done with the information offered to her by the class. The need for some simple apparatus which the boys could use to work out for themselves the real value of such appliances as are used in everyday life, seems to the teacher to be very great. Much more time should be devoted to this work, apart from any further use it might have in after-life.”

Special Course—English. Std. VII. Boys.

“The scheme proposed was on too large a scale, not all the work being accomplished. It is felt that, instead of attempting the stories and reading of *three* of Shakespeare's plays, it would have been better to have studied one, e.g., ‘Julius Cæsar,’ in more detail. The poetry taken with this class needs careful selection: poems dealing with adventure, not too great in length, and of a light, swinging rhythm. The more serious type of poem needs to be carefully led up to.

“A trial by jury was essayed at the request of the Class. This shows promise of good results under careful supervision. The teacher suggests that the class have the general management, as this makes the interest greater. The teacher should always be accessible for reference and advice. The trial opens up a large field for speech training, fluency of speech and ideas, and a demand on the reasoning powers. The first attempt was managed entirely by the class, the case being an imaginary one. The second one dealt with the attempt to poison Mr. Lloyd George. Newspapers were consulted and the main idea of the crime obtained. The rest of the work was entirely original. In both cases the class-room was arranged by the boys to suit their own ideas.

“The Head Master was present at the second trial, and he suggested that, after a few entirely unaided attempts by the class,

they be told in some detail the actual organization of a court of justice. This he proposed doing himself. The second attempt showed great improvement on the first. A more orderly sequence of thought was evident, and some pains had been taken to render the affair more formal."

Specialization in French. Boys' School.

"I found that the boys did not know enough French for the scheme I had prepared. If I could have stayed longer, I should have begun from the very beginning of French with all but the Commercial Class and the Ex-VII. Exercises in pronunciation were needed, and the elementary rules of grammar were not known in some cases. The boys were not used to being taught on the direct method, but they enjoyed being spoken to in French, and after a while they began to say when they did not understand. Most of them enjoyed conversation lessons, and when the diffidence had worn off, nearly all attempted to join in. Std. VIIA especially appreciated this form of lesson, and the boys showed considerable interest in the subject.

"The more advanced boys in Ex-VII. and the Commercial Classes seemed to like the subject, and they derived a considerable amount of pleasure from the translation of the books they were reading. One poem was taught to Std. VIA. The boys liked saying it when learned, and they managed to put a considerable amount of expression into it. One boy learnt another piece to say in class in a later lesson. (This device was the student's own.)

"In my desire to give a larger vocabulary I made the mistake of talking too much myself instead of letting the boys talk. It would have been better for the class if I had made individuals repeat sentences after me when I found that the boys were shy of answering in French. A Belgian boy in VA proved very useful in talking to the class. The boys liked to hear him speak his native language."

Class C (1916-18) began their comment in their first practice, for which they had been prepared, in practical work, rather more intentionally than in the case of A and B. They seemed to find the need of reviewing and setting down what they thought no serious embarrassment, and about the usual percentage, thirty, shewed promise. The following is representative:—

Std. V. Boys. First Principles of Cubic Measure.

"I found the class grasped the principles of Cubic measure much more easily than I had anticipated. I was sometimes at a loss when I found them taking the lesson out of my hands. Again I think I underrated their intelligence. I was able to cover more ground than I had anticipated, but one or two boys had to have individual attention. I was not satisfied with the lesson, as it seemed to be quite different from the one I had prepared. *Note later.* The next day, when giving easy problems to test, I found that the boys had really grasped the principle. I think the apparatus I used—cubes and blocks of wood—had done all I expected it to do."

The second practice of Class C, in view of the experience of the need to sift for specializing, encouraged invitations to the method and specialist supervisors to visit and report on possibilities shewn. There being a Science Scheme in the College with some new features, several offered this, and, among a set in which *at least*

fifty per cent. shewed hopeful signs of a realization of what self-criticism means. The following was one of the best:—

Science—Economical Buying of Clothing. Std. IV. Girls.

“The first lessons were taken in two periods, of 40 minutes and half an hour. The provision of apparatus, organization of a class of sixty children not familiar with this kind of work, teacher’s little knowledge of the children, and the lack of class-room space, all presented difficulties against such lessons. These were, in the end, overcome, largely by the practical kindness of the Head and Class Teachers.

The teacher evolved a plan by which nearly every child, at some stage of the proceedings, had something to do. Towards the end of the lesson, several of the children tended to become a trifle unruly, partly due, perhaps, to lack of occupation (for they had finished) and partly to over-excitement. In a future lesson teacher would see that something was provided for children to get on with, when there was no need for further observation or experiment. With a little more organization, too, teacher might have managed to do away with the crowding of the front floor-space in watching the proceedings.

In the second period, when the anxiously awaited results were determined, the teacher found that she had over-estimated children’s powers of writing down what they had done and found out, and thought that, perhaps, in future, it would suffice to let the children give a verbal account, the teacher meanwhile setting it *down in order* upon the B.B.”

This is only the first stage of the experiment, and, crude as the results may be, we are justified in saying:—

1. The results were better when a single lesson only had to be reviewed. Future work would confine comment to Criticism Lessons and to *certain selected lessons* during school practice.
2. It does not seem to matter how soon the device is employed. The suggestion is offered that, where possible, the first six weeks in College should offer a set of Demonstration Lessons, to small groups, specially chosen to reveal essentials. Halfway through these, the Demonstrator should analyse her own performance and lay it down as a rule that this should be done. A week’s practice should then follow and some lessons be so dealt with by the students who give them.
3. We are quite convinced that, apart from the future value, the benefit to the quality of the teaching is not negligible. The class 1915-17, which began with the usual complement (about 10 per cent.) of obvious weaklings, had no mark below average at the close. It is also worth noting that the *method record books have not been ‘lost,’* although no hint was given that they would ever be wanted after the students left.

“This last remark brings to one’s mind Mr. H. G. Wells’ allusion, by the way of Hugh Britling,* to German practices in diary-keeping during the earlier part of the war. ‘Keeping records’ certainly made these girls interested in their own conflict, and in this

* “Mr. Britling Sees it Through,” chap. iv, par. 10.

connexion, too, may we frankly confess our doubts, at times, as to whether *we* were not 'going in for psychology' when we might better be 'singing Tipperary.' Students, equally with the German rank and file, record many things 'that are not the beautiful things they ought to put down.'"

The House Fly. Children of 6.

"Student was placed in somewhat of a predicament by the fact that, when letting the fly escape from under the glass at the end of the lesson, the Class Teacher said 'Kill it.' As this would be against the advice of her College Critic, the student temporized by allowing the fly to escape for this once only, but pointed out to the class again that flies carried germs and diseases and must be killed 'kindly'!!!"

The inverted commas are the student's own. The notes of exclamation were added by the Method Supervisor—in red ink.

CHILDREN'S HEROES. A SCHOOL PRACTICE RECORD.

By EDITH L. HEWLETT, M.Sc.

In March, 1916, the students of the Swansea Training College, who were at school practice in the senior departments of elementary schools in the town, had essays written by the children in their classes on "My Favourite Hero or Heroine."

No preparation was made for this essay. The papers collected came from fourteen departments (seven girls', six boys', one mixed) of elementary schools. In all there were 2,102 essays, 942 written by boys and 1,160 by girls.

Each student classified the essays from her class according to the age of her pupils, and prepared a report giving a list of the heroes chosen and the reasons why they had been selected.

From these reports, it was evident that Nelson and Florence Nightingale were very popular; that a keen interest was taken in soldiers, and that the qualities most admired were bravery, loyalty to one's country, and self-sacrifice.

It was interesting to note that the bravery of the heroes other than those who had distinguished themselves in battle was commented on many times.

Queen Victoria was admired "Because she was a brave lady." "Because she was a brave woman and went to see the soldiers when they were wounded."

King George was chosen by a girl of eight because he was "A brave man for battleing now that wars are on"; and by a boy of ten, "He was not afraid to go near the trenches."

Admiration for loyalty to country was plainly seen in the following extracts:—

Nelson.—"Tried to do all he could for his country." "Died for his country and protected England from foes."

Wolfe.—"Did not care if he died so long as England won."

Joan of Arc.—"Saved her country." "Fought so bravely for her country."

Drake.—"Saved our country."

Owen Glendower.—"He died to save my country."

Of *Gwenllian*, "She gave her life for her country"; and on *Boadicea* the same note was made.

A *Red Cross Nurse*.—"She has been very true to her country since the beginning of the war."

Julius Cæsar.—"Did a great deal for his country, and saved the Romans from being beaten."

Garibaldi.—"Won the freedom of Italy."

In the following lists the names of the chief heroes, and the number of times they were chosen, are given:—

Boys.

Nelson, 297; Sergeant Fuller, V.C.,* 47; General Wolfe, 41; Clive, 39; Lord Roberts, 35; Lord Kitchener, 30; Captain Scott, 23; Alfred the Great, 23; George Washington, 21; Joan of Arc, 18; Napoleon, 16; Wellington, 16; Julius Cæsar, 15; Harold, 13; Drake, 13; Grace Darling, 12; Lieut. Warneford, 11; Cromwell, 11; King of Belgians, 10; Nurse Cavell, 10; Sir John French, 9; St. David, 9; Picton, 9; Admiral Sturdee, 9; Charlie Chaplin, 7; Hereward the Wake, 6; the Black Prince, 5; the Duke of Marlborough, 5; Florence Nightingale, 5; Jesus Christ, 4; Lord Shaftesbury, 4.

Others less frequently chosen included King George, Lord Derby, Queen Victoria, Admiral Beatty, Lord Fisher, Gwenllian, Owen Glendower, Caradoc, St. George, Robinson Crusoe, Edward VII, Raleigh, King Arthur, Guy Fawkes, the King of Serbia, Captain Cook, Livingstone, Wilberforce, George Stephenson, William Tell, Llewellyn the Great, Richard I, General Gordon, Robert Bruce, Howell Dda, Sir Philip Sidney, Prince Charlie, Baden-Powell, Sir Henry Morgan, Howell Harris, Griffith Jones, Robert Owen, fifty-five soldiers, a sailor, and a Red Cross nurse.

Girls.

Florence Nightingale, 222; Nelson, 137; Joan of Arc, 101; Nurse Cavell, 98; Grace Darling, 65; Queen Victoria, 36; Lord Roberts, 32; Lord Kitchener, 29; Gwenllian, 21; Captain Scott, 17; Alfred the Great, 17; St. David, 15; Admiral Jellicoe, 15; Queen Elizabeth, 15; Wellington, 14; Owen Glendower, 13; Napoleon, 12; St. Patrick, 12; King Arthur, 10; Boadicea, 9; Richard I, 8; Prince Albert, 8; Wolfe, 7; King of the Belgians, 6; Gordon, 6; Llewelyn the Last, 5; Sir Philip Sydney, 5; Edward VII, 5; Cromwell, 5; Mary Jones, 4; Drake, 4; Charlie Chaplin, 4; William the Conqueror, 4.

Others chosen less frequently included Sir John French, Lieut. Warneford, Lloyd George, Clive, Llewellyn the Great, Prince Charlie, Elizabeth Fry, Kate Barless, Princess Mary, Howell Dda, John Penry, Picton, Garibaldi, Owen Gwynedd, Hereward the Wake, Henry I,

*A Swansea V.C.

Tennyson, King George, Raleigh, Simon de Montfort, Wallace, Henry VII, Griffith Jones, Jesus Christ, Watt, George Stephenson, Gerald, Dick Whittington, Hercules, St. George, fifty-one soldiers, and a class teacher.

From these lists it is evident that men and women of action are most interesting to children. The child who wrote of Cromwell, "I like him because he did many stirring deeds in his time," probably expressed the feeling of the majority for their own particular hero. Many heroes are chosen from people connected with the present war, and of the rest the majority are taken from history. The boys especially rarely chose their heroes from fiction.

The inquiry was pursued further to determine, if possible, how the children's interest in war heroes varied with age and sex. From their reports, previously referred to, the students, working in groups, prepared lists of heroes and heroines chosen by boys and girls of different ages. The names were grouped in sections dealing with present war, past war, other history and fiction, and the number of times each hero had been chosen was noted. Very few of the heroes did not fall into any of these classes.

The combined results of these different groups are shown in Tables I and II.

TABLE I.—BOYS.

I Age.	II Present war.	III Past war.	IV Total.	V Other history.	VI Others.	VII Total from history and life.	VIII Fiction.	IX Animals	X Total.
12	12	78	90	10	2	102	3	—	105
11	39	83	122	6	1	129	2	—	131
10	95	208	303	43	7	353	25	6	384
9	38	75	113	29	2	144	—	—	144
8	36	115	151	10	—	161	1	—	162
7	9	7	16	—	—	16	—	—	16
									942

TABLE II.—GIRLS.

I Age.	II Present war.	III Past war.	IV Total.	V Other history.	VI Others.	VII Total from history and life.	VIII Fiction.	IX Animals	X Total.
14	7	16	23	2	—	25	—	—	25
12	9	56	65	8	—	73	25	4	102
11	42	113	155	20	3	178	7	—	188*
10	86	172	258	50	6	314	9	—	323
9	30	114	144	48	6	198	11	1	210
8	64	147	211	80	—	291	16	5	312
									1160

*In three of these essays the girls described an ideal hero.

It is impossible to draw any conclusions from the results in columns ii, iv, and vii of these tables, although it is clear that those in column vii are almost equal to the totals in column x.

The results in columns ii, iv, vii, and viii are shown as percentages of those in column x in Table II.

TABLE III.

BOYS.					GIRLS.			
Age.	Heroes war (present). a	From war. b	History and life. c	Fiction. d	Present war. e	War.	History and life. g	Fiction. h
14	—	—	—	—	28	92	100	0.0
12	11.4	85.7	97	2.9	8.8	63.7	71.5	24.5
11	29.0	93.1	98.5	1.6	22.3	82.4	94.6	3.7
10	24.7	78.9	91.9	6.5	26.6	79.8	97.2	2.7
9	26.4	78.4	100	0.0	14.2	68.5	94.3	5.2
8	22.2	93.2	100	.6	20.5	67.6	93.2	5.1
7	16.2	100	100	—	—	—	—	—

Heroes from the Present War.

The frequency with which heroes were chosen from people who have in some way distinguished themselves in the present war is shown in Figure I. From the curves it is clear that, except in the case of the girls of ten, the results for boys were higher than those for girls of the same age.

Both curves fall during the last interval.

Heroes from Past and Present Wars (Figure II).

Again the frequency curve for boys is higher than that for girls, except in the case of the girl of ten. The highest point on the curve for girls is reached at the age of eleven. In Figure I the highest point for girls is attained at the age of ten. This seems in accordance with the observation made by Dr. Kimmins in his article on the "Special Interests of Children in the War at different Ages," to the effect that the girl of ten shows a remarkably bellicose attitude. At first the higher point for girls of eleven on the curve in Figure II seems contradictory, but an examination of the reports for girls of ten and eleven shows that the latter selected Florence Nightingale as their heroine a relatively large number of times. Of the girls of eleven 26 per cent made the selection, and of the girls of ten 16 per cent. Further reference to the reports shows that both sets of girls were mainly interested in the heroine on account of her kindness to and sympathy with soldiers. When these points have been taken into account, the results seem to indicate that girls of ten are more interested in warriors than are girls at any other age.

Children's Interests in Heroes from Fiction.

This seems remarkably small, especially in the case of boys. The figures in columns (d) and (h) of Table III indicate the frequency with which characters were taken from fiction, and these results are expressed in the curves of Figure IIIa.

In columns (c) and (g) of Table III the percentage numbers of heroes chosen from life and history are given. These results have been plotted in curves of Figure IIIb, and once more it is plain that the results for boys are all greater than are those for girls of the same age, except at the age of ten. The girl of ten seems to be remarkable for the vivid interest she shows in biography.

The Relative Importance of the Army and Navy.

From the students' lists it appeared that more children had chosen heroes from the Army than from the Navy. After making summaries it was found that 200 boys, i.e., 21·2 per cent, had chosen their heroes from the Army, while only 17, i.e., 1·8 per cent, had chosen theirs from the Navy. Of the girls, 126, i.e., 10·8 per cent, gave heroes from the Army, and 15, i.e., 1·2 per cent, from the Navy.

The most popular heroes among the boys were :—

Sergeant Fuller, V.C.	...	...	...	...	47
Lord Roberts	...	...	...	...	35
Lord Kitchener	...	...	...	...	30
Lieut. Warneford	...	...	...	...	11
King of Belgians	...	...	...	...	10
Sir John French	...	...	...	...	9

The naval heroes chosen by boys were :—

Admiral Sturdee	...	...	...	...	9
Admiral Jellicoe	...	...	...	...	3
Admiral Beatty	...	...	...	...	3
Lord Fisher...	...	...	...	...	1
A sailor	...	...	...	...	1

The girls' heroes from the Army included :—

Lord Roberts	...	...	...	...	32
Lord Kitchener	...	...	...	...	29
King of Belgians	...	...	...	...	6
Sir John French	...	...	...	...	3

Sergeant Fuller was only given by one girl.

Fifteen gave Admiral Jellicoe.

Welsh Heroes.

Instruction in Welsh History is given in the schools from which the essays were collected, and naturally some Welsh heroes and heroines were chosen. The most popular of these were :—

A. Chosen by girls :

Gwenllian	...	...	...	...	21
St. David	...	...	...	...	15
Owen Glendower	...	...	...	...	13
Caradoc	...	...	...	...	11
Boadicea	...	...	...	...	9
Llewelyn the Last	...	...	...	...	5
Mary Jones	...	...	...	...	4

B. Chosen by boys :

St. David	...	...	...	...	9
Picton	...	...	...	...	9
Owen Glendower	...	...	...	...	3
Caradoc	...	...	...	...	2

In all, 95 girls and 30 boys gave Welsh heroes or heroines. Of the 95 girls, 35 gave heroines ; of the boys, only one.

The percentage numbers of characters from Welsh History are shown in Table IV, and the results for boys and girls of the same age are shown in the curves in Figure IV. From the diagram it is seen

that, except in the case of children of nine, the frequency with which Welsh characters were chosen is greater in the case of girls than in that of boys.

TABLE IV.

BOYS.				GIRLS.		
Age.	Welsh heroes.	Total.	Percentage Welsh.	Welsh heroes.	Total.	Percentage Welsh.
14	—	—	—	3	25	12·9
12	4	105	3·8	8	102	7·8
11	0	131	—	7	188	3·7
10	10	384	2·6	28	323	8·6
9	13	144	9·0	15	210	7·5
8	3	162	1·8	34	312	10·8
7	—	16	—	—	—	—
Totals.	30	942	3·2	95	1160	8·2

Of these, the most popular among the girls is Florence Nightingale, who was mentioned by 222 girls, i.e., by 19 per cent of the total number of girls. Next in order of popularity came Joan of Arc, chosen by 101; Nurse Cavell by 98; Grace Darling by 65. Other heroines were given by 91 girls, making in all a total of 597, or 51·5 per cent of the whole number.

Of the boys, only 49 gave heroines, i.e., 5·2 per cent. Joan of Arc was their favourite, and was chosen by 18 boys.

In Table V, the variation with age of the frequency of choice of heroines is shown, and the percentage results are shown in Figure V.

TABLE V.

BOYS.				GIRLS.		
Age.	Heroines.	Total.	Percentage heroines.	Heroines.	Total.	Percentage heroines.
14	—	—	—	1	25	4·
12	8	105	7·6	71	102	69·6
11	11	131	8·4	115	188	61·1
10	9	384	2·3	180	323	55·7
9	5	144	3·3	92	210	43·5
8	16	162	9·8	137	312	43·8
7	—	16	—	—	—	—
Totals...	49	942	5·2	596	1160	51·5

Children's Interests in their Heroes.

This report has so far dealt mainly with the quantitative results obtained from the investigation. There are others of a qualitative nature which are no less interesting. Reference has already been made to the fact that the reports of individual students clearly indicated that bravery and loyalty to one's country are qualities much

admired by children. From the combined reports for children of different ages, the development of the children's interests in their heroes can be traced.

Age 7 and 8 Years.

At this age there seems to be little difference between boys and girls. All seem to admire bravery and strength. A boy writes of Nelson—"I like him because he fought at a battle"; a girl declares Richard Lion-heart to be her hero "Because he was so fond of fighting"; and another Hercules, "Because he was the strongest man in the world."

They frequently indicate that they value success. A girls selected William the Conqueror "Because he was a Conqueror."

Others valued the symbols of success. In giving their reasons for choosing Nelson boys wrote—"He had stars and medals." "He must be brave because there is a monument to him in London."

Children of this age show some appreciation of self-sacrifice, but the knowledge of the deeds done by their heroes is often vague.

The children who gave Christ said of Him "He did all He could for the world"; another of Lord Kitchener "He did wonderful things"; and of Admiral Beatty "He is trying to save us from the swords of the baby-killers."

9 Years of Age.

The children are still somewhat vague as to what their heroes have done.

Nelson "was a great leader who did his duty." It was noted that he was "good at bird-nesting when a boy."

Lord Kitchener "is keeping the enemy out of the land, and has an army of his own."

The boys give more definite information than do the girls at this age.

Charlie Chaplin, the cinematograph celebrity, is mentioned for the first time by one boy, and is admired "because he is so funny." A girl admired the beauty of the Lady of Shalott, and another wrote an appreciation of her class-teacher, in which she emphasized the facts that "She tells us stories, and teaches so many children."

10 Years of Age.

The children now seem to have deeper insight into the character of their heroes, and their interests in them are more varied.

The boys seem to be more thoughtful than the girls. They still appreciate success. "Llewelyn the Great rode to battle and won many wars"; "Lord Roberts won the V.C."; "Lord Roberts was the first man to enter Pretoria," are characteristic extracts.

Boys of this age show appreciation of the forces against which their heroes have had to contend, and of their ingenuity in overcoming them.

Drake "fought against such great odds in the Armada"; William the Conqueror "was so clever in making plans and schemes"; Wolfe "was so clever to think of climbing the steep heights of Abraham."

Whether one reads an essay in which a boy expresses admiration for Captain Scott because "he tried to increase England's fame by finding new territories," or another in which Charlie Chaplin appears as the hero because "he is so clever at making people laugh, and people want cheering up now when there are so many being killed at the war," it seems clear that the boy of this age is more thoughtful and more mature in mind than are those of nine. But the boy of ten is still a child, as was clearly shown by the little fellow who wrote of a soldier friend, and, after admiring his bravery and ability as a soldier, added: "He used to bring sweets for my sister and me."

Girls of this age take a vivid interest in their heroes. The bravery and fearlessness of their favourite heroes—Nelson, Lord Roberts, Florence Nightingale, and Nurse Cavell—are emphasized repeatedly. One girl, writing of Nelson, uses love instead of admire, and says: "The reason I loved him was because he always made the people feel happy, and was very strict and stern, and very clever, and was often in wars and battles, and was always victorious." This seems to express the feelings of many girls of this age: they like a stern and successful warrior. Napoleon "was such a fine soldier, brave and ambitious." Boadicea "led her soldiers bravely to battle." King Alfred was "daring and reckless." Queen Elizabeth "defied Philip of Spain, and made England very powerful." Lord Kitchener is "so determined that England shall beat the Germans."

Of Owen Glendower one girl wrote: "I call him my hero because he was a Welshman and I am a Welsh girl, but I like him also because he died to save my country"; and another of Nurse Cavell, "She was Scotch and so am I"; and another said of the same heroine, "I do not know much about her, but she has died for her country."

In the essays on Florence Nightingale sympathy with the wounded was frequently indicated.

One girl gave Mary Queen of Scots, giving as her reason that she was "so sorry for her because she suffered so much in prison."

An interesting note was made on St. David by another: "Schools get a holiday in remembrance of him"; and the girl who selected Uncle Tom, from *Uncle Tom's Cabin*, as her hero was prepared to stand by her choice, for she wrote: "I think Uncle Tom is the bravest hero, and so he is my brother said."

11 Years of Age.

The boys show a thoughtful appreciation of the work their hero has done for his country. Characteristic remarks are—"Nelson prevented Napoleon from invading England"; "Wolfe won Canada for us"; "Baden Powell has done work for our empire"; "Joan of Arc freed France from England."

One boy admired Drake because "he robbed Spanish galleons with only one small ship"; another Clive, because "he was an idle schoolboy."

Self-sacrifice and service for others seems to be the keynote of the girls' essays. Nelson "saved England from France"; Joan of Arc "sacrificed her life"; Florence Nightingale "saved so many British soldiers."

Three girls described an ideal hero, and one was very feminine in her choice of Raleigh who "was so polite to the Queen."

12 Years of Age.

The boy of twelve shows an interest in government. Of Cromwell he says: "He struggled against the tyranny and misrule of Charles I"; "He laid the foundations of English liberties"; and of Lord Derby that "He brought in conscription."

He is interested in the acquisition of territory. "Wolfe obtained Canada for Britain"; "Drake saved our country, and tried to find us a new one," are characteristic extracts.

He thinks not only of the bravery, loyalty, and success of Nelson, but makes some attempt to understand his tactics: "He believed in getting as near to the enemy as possible in battle."

And in these essays we find the first serious attempt to associate a hero's followers with his work in the note about Cromwell: "He was the leader of the bravest soldiers England has ever had."

In the girls' essays self-sacrifice is again repeatedly emphasized. There are indications that the girls try to understand the purpose underlying the work done by their heroes. The following extract is one:—"Florence Nightingale nursed the soldiers so that they could get well quickly, and return to the firing line and help to win the war."

From consideration of the heroes chosen, and the reasons given for the choice, it is apparent: That bravery and success in battle are qualities admired by almost all children, and that the older children admired self-sacrifice, loyalty to one's country, ingenuity, and strength of purpose.

1. Common nationality as a basis of hero-worship only occurred four times.

2. That many heroes were chosen from people associated with the present war.

3. That a large number of the heroes have been associated with war either past or present.

4. That extremely few were chosen from fiction and mythology.

5. That not many were chosen from Welsh History.

6. The cinematograph, although undoubtedly popular with town children, seems to have played little part in providing those examined with heroes. Charlie Chaplin was the only one from this source, and he was only chosen eleven times.

7. The girls chose many more heroines than did the boys.

The selections probably indicate to some extent the interests of the children. That many gave heroes connected with the present war is not surprising. We are all interested in it. Again, that the majority of these heroes belonged to the Army, and not the Navy, is not a matter of surprise, for probably we all know more of the part played in the present conflict by the Army than of that played by the Navy.

Of school subjects, History seems to have affected the results to a much greater extent than Literature. The feeling underlying the question, "Is it true?" so frequently asked by very young children after a story, evidently persists in later years of school life. Also the

present times are such as to make past war seem more real to us than would have been the case a few years ago, and this possibly accounts to some extent for the large part it has played in providing the children with nerves.

The overwhelming popularity of Nelson is an interesting point. He was selected by 31·5 per cent of the boys and by 11·5 per cent of the girls. Recent lessons in school may to some extent be responsible for this, but recent and forceful instruction is not the only factor which influences children in their choice of a hero, as was shown in the case of St. David. Lessons on his life and a half-holiday in his honour had been given in all schools about a fortnight before the essays were written, but only 24 children chose him as their hero. In the story of Nelson's life we have bravery, success in battle, magnificent service to his country, and, as one boy tersely remarked, "He was a Navy man." This brings to mind the fact, noted by Mr. Ballard, that boys like to draw ships, and it seems highly probable that here is part explanation of the problem, for it seems natural that to boys interested in ships a hero connected with them should make a strong appeal. This does not, however, explain why the favourite should be Nelson, and not Drake, for instance. Drake probably labours under the disadvantage of being shown to the children as an explorer who added to our knowledge of Geography rather than as the reckless and daring plunderer they would be likely to admire. Also Nelson seems more happily placed in time, just sufficiently remote for his most striking work to stand out clearly apart from the minor details of his career, and yet not so far removed as to make it difficult for his admirers to imagine themselves in the place of their hero, seems true, and most probably accounts for two of the facts noted earlier in this report—

- i. A noted V.C. was selected by 47 boys, but by only one girl.
- ii. 51·5 per cent of the girls chose heroines as compared with 5·2 of the boys.

Reference has already been made to the small number of heroes chosen from the Navy. This, combined with the popularity of Nelson, makes it interesting to note that a girl of twelve refers to Admiral Jellicoe as "A second Nelson," and a boy of ten, after firmly declaring that Admiral Jellicoe is his hero, remarks pathetically, "He has not had much chance yet to prove that he is a hero." And the question arises as to whether the arrangement of lessons on the Navy of to-day, and what it has done so far in the war, would not be a source of keen delight to the children.

On two points there seems to be little doubt:—(1) That the children examined were extremely interested in biography; and (2) That in their essays the development between the ages of eight and twelve of interest in their hero was well marked.

THE BINET AND POINT-SCALE METHODS OF TESTING INTELLIGENCE.

By E. O. LEWIS, Psychological Laboratory, Cambridge.¹

Probably the most important modification yet proposed of the Binet Scale is the Point-Scale Method by Yerkes-Bridges,² the chief distinguishing features of which are the following. The year-group tests of the Binet Scale are rejected in favour of norms stated in percentage of marks scored on an average by pupils of various ages. There are only twenty tests³ in the Point-Scale, as against fifty-four in the Binet Scale; but nineteen of the twenty tests are Binet tests. The new test introduced requires the subject to supply the missing term in a pair of analogies, e.g., storm: calm; war: —. The authors of the Point-Scale have omitted several of the Binet tests which obviously relate to previous instruction, e.g., money tests, giving date, months, etc. Another important modification introduced is a system of scoring which gives credit for partially correct answers, instead of the all-or-none method adopted by Binet.

The method of Binet testing adopted in the present investigation was the wide-range as contrasted with the narrow-range method so often adopted. Each pupil was given every test which he would be likely to attempt, and was not limited to those groups of tests corresponding to his chronological age. The order in which the tests was given was based upon that adopted by Yerkes and Bridges, who have arranged the tests according to the difficulty they presented normal children.

RESULTS.

Data were obtained by testing fifty pupils in schools for mentally defective children of high grade.⁴ The results obtained with the two scales, although my investigation was by no means an extensive one, present certain interesting differences. It is not necessary to give the data in detail, as it is intended to restrict attention to the more general features of the results.

On comparing the mental age of each individual as ascertained by the Binet Scale and Point-Scale methods respectively, it was found that in 36 cases the mental age scores were higher with the Point-Scale, in 5 cases the same, and in 9 cases only were they higher with the Binet Scale. According to these data, the Binet Scale, as compared with the Point-Scale, tends to exaggerate the retardation of mentally defective children. But the number of cases tested was so small that these results alone cannot constitute a strong case against the standardization of the Binet Scale. Fortunately, a recent investigation with much larger numbers points to the same conclusion as that just indicated.

Haines⁵ has conducted an extensive investigation with 1,000 minor delinquents for the comparison of the two scales. Assuming that an individual is mentally defective if his record shows four or

¹ This article is published by the kind permission of the Board of Control.

² "The Point Scale for Measuring Mental Ability." Yerkes, Bridges & Hardwick. Published by Warwick & York.

³ See Table I.

⁴ The two schools were the Littleton House, a residential school, and Hope Street, a day school, both at Cambridge.

⁵ *Journal of Exper. Psychol.*, I, 51.

more years of retardation (although it may be noted that Binet suggests that two years retardation is sufficient to place an individual under grave suspicion of mental deficiency), Haines found that 563 of the 1,000 delinquents were to be classed as mentally defective when tested by the Binet Scale. Assuming, on the other hand, that a case is mentally defective unless he is able to score 75% of the marks which constitute the norm for individuals of his age, only 291 cases would be classed as defective according to the results obtained with the Point-Scale. In the face of such marked divergence of results, it is not unnatural to favour the method which is the more conservative in declaring a particular case to be mentally defective.

The Binet tests which do not appear in the Point-Scale are chiefly those which test knowledge obtained by school instruction. That the omission of educational tests should enable the defective child to compare more favourably with the normal child seems very significant. It verifies my general observation that defectives seem less retarded when examined by the more formal mental tests of the laboratory than when given educational tests. Mr. Burt¹ has recently demonstrated the same fact in a most striking way. He concludes that the amount of retardation of defectives in educational attainments "is far greater than that in general ability; children in Special Schools are characterized more by backwardness in school-work than by defective intelligence. Defective intelligence is usually accompanied by extremely defective attainments; but defective attainments are by no means an invariable index of an equal defect in intelligence."

What is the explanation of this apparent disparity between intelligence and attainments? Is it that the learning of ordinary school subjects makes demands upon those mental abilities which are specially weak in most defectives? Or is it that school conditions and the present methods of teaching in school generally, are so unsuitable that the defective child as compared with the normal child is not able to make what progress he is capable of? Or, in other words, are the conditions such, even at the best schools, that the subnormal child is made to appear more defective than he is by natural endowment? Or is the explanation to be found simply in the fact that formal mental tests afford no adequate criterion of the defective's lack of ability to make continuous mental progress? Other possible explanations suggest themselves; but we must look to future research to enlighten us as to what is the real explanation.

It has been customary to give the mental status of a mentally defective individual in terms of the number of years of retardation. This is scarcely satisfactory, because four years retardation of a child of ten may signify more than four years retardation in an adolescent of eighteen. Therefore it has been maintained that a better method of expressing the mental status would be the "mental quotient" (M.Q.) or the "coefficient of mental ability" (C.M.A.). The M.Q. is obtained by dividing the Binet mental age of an individual by his chronological age; and the C.M.A. by dividing the score made by the individual when tested by the Point-Scale by the norm for the age and group to which the individual belongs. Although the

¹ "The Distribution and Retardation of Educational Abilities," 1917.

coefficients have certain obvious advantages, it should be observed that they may be misleading. Thus a boy of twelve with a M.Q. of .5 would be decidedly defective, whereas a man of fifty with the same M.Q. would be normal. Therefore it is necessary to note the chronological ages of the subjects when these coefficients are used.

A comparison of the coefficients obtained by these two methods, the M.Q. and the C.M.A., shows that in the case of the older pupils the coefficients obtained by the Point-Scale are higher than those with the Binet Scale, whereas with the younger pupils the converse holds true. Twenty-three of the 50 pupils were over twelve years of age. Eighteen of these had higher C.M.A.'s than M.Q.'s; in one case the two coefficients were the same; and in the remaining four cases the M.Q.'s were higher than the C.M.A.'s. Of the 27 pupils under twelve years of age, only six had higher C.M.A.'s than M.Q.'s; whereas in 21 cases the converse held good. Probably the fact that the Binet Scale has no tests for eleven year old normals partly explains the low scores made by the older children with the scale; but even allowing for this, many investigators agree that the Binet tests for the higher ages, especially those above ten, are too hard,¹ whereas those for the lower ages are too easy. According to the above data, the Point-Scale adjusts the balance to some extent in this respect.

The authors of the Point-Scale have arranged the tests they used in the order of difficulty they presented to normal subjects. This has also been attempted with the data obtained in this investigation, by calculating the percentage of the total possible marks gained on an average for each test separately.² Table 1 gives the tests in the order of difficulty they presented to the defectives tested, No. 1 being the easiest and No. 20 the most difficult. Thus the same test comes first, that is, it proved to be the easiest with both normal and defective subjects.

The most marked differences in the two columns in Table 1, notwithstanding the small numbers tested, seem to be significant, and not merely accidental. They suggest some of the aspects in which defectives are decidedly weak. The most marked displacements are 4—10, 5—12, 6—15, 11—5, 12—3, and 16—11.

The test which changes position from 4 to 10 is that which tests the immediate memory for digits; and that which changes from 6 to 15 tests the immediate memory for words. It seems that these tests present relatively greater difficulty to the defectives than they do to normal children. The data suggest that it would be interesting to investigate whether verbal memory is weak with most defectives even when there are no marked speech defects. Such an investigation would also throw much light upon the present debatable problem as to whether Binet in his scale attaches too much importance to linguistic development.

Counting backwards from twenty seems to be a good test. Whereas normal pupils find it easy (No. 5), the defectives found it difficult (No. 12). Counting backwards is not a test of rote memory merely. It gives some indication of the individual's ability to

¹ Wallin in his recent volume on "Problems on Subnormality," maintains that failure to appreciate the difficulty of the Binet tests for ages above ten has led investigators to exaggerate the proportion of criminals that are mentally defective.

² The limitations of this method are obvious; and at best, the data obtainable can only indicate in a general way some of the more striking changes in the relative positions of the test.

reverse well-established associations; and also of his power to manipulate and modify what has to a great extent become mechanical.¹ With but few of the Binet tests does the response made by defectives differ so greatly from that of normals as with this test.

Of the three tests which present comparatively less difficulty to defectives, two of them test form perception; the test which changes position from 12 to 3 is that for copying figures, and that which changes from position 16 to 11, tests memory for designs. The other test which the defectives did comparatively easily was that which tested suggestibility; but the futility of this test will be discussed in a later paragraph.

TABLE I.

Tests	Arithmetic test.	Omissions.	Comparison of lines and weights.	Mem. for digits.	C'nting b'ckw'rds	Mem. for S't'n'ces	Picture test.	Arranging weights	Comparison of objects.	Definitions.	Suggestion.	Copying drawings.	Uncontrolled association.	Constructing sentences.	Understanding questions.	Mem. for drawing	Absurdities.	Placing words in sentences order.	Abstract terms.	Analogies.
Normals	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Defectives	1	4	2	10	12	15	7	9	6	11	5	3	13	16	14	11	17	20	17	18

This simple method of comparing the relative difficulty which the various tests present to normals and defectives affords data as to the diagnostic value of the tests, that is, what tests are most helpful in the differentiation of the subnormal from the normal. This problem has, however, recently been thoroughly investigated by Brigham.² His results show that the five Binet tests of greatest diagnostic value were the following: Comprehension of difficult questions; reconstruction of dissected sentences; detection of absurdities; definition in terms superior to use; definition of abstract terms.

The practical value of these results is obvious. Medical officers of schools and teachers; when they have to make a preliminary examination of a large number of pupils in a single afternoon, find it quite impossible to apply many of the Binet tests; and to know which tests are of greatest diagnostic value saves much time and labour. This by no means implies that such snap-shot diagnoses can be regarded as adequate.

An argument which has been brought forward to support the view that mental deficiency is in most cases a general mental retardation,—a fundamental principle in the construction of the

¹ This test approximates more nearly to the ideal intelligence test than most of the other Binet tests if Stern's definition of intelligence be accepted. "Intelligence is a general capacity of an individual consciously to adjust his thinking to new requirements; it is a general mental adaptability to new problems and conditions of life." *The Psychological Methods of Testing Intelligence*, p. 3.

² "The Diagnostic Value of Some Mental Tests," *Psychol. Monogr.*, 24, 1.

Binet Scale,—is the small amount of “spread”¹ which the records of defectives show, as compared with those of normal individuals. Unfortunately, what evidence there is in favour of this statement was obtained by using the “narrow-range” method of testing. The results obtained by using the “wide-range” method show considerable spread, although none of the subjects of this investigation were epileptics.² The results of four subjects showed a spread of 2 years, six of 3 years, twenty of 4 years, fourteen of 5 years, two of 6 years, and four of 7 years. Such wide spread may be partly due to the fact that many of the subjects had had but little systematic instruction in ordinary school subjects; but a careful analysis of the individual records incline me to attribute this spread to the more important and interesting feature that specific mental defects are primary factors in determining the records of the subjects, and that the general retardation can be regarded as only of secondary importance. In the case of most of these subjects observation seems to show that the specific defects quite mask the general retardation.

In applying the Point Scale, one or two improvements suggested themselves. A Binet test which the authors of the Point Scale would have been well advised to omit is that of suggestibility. It is true that the method of scoring with this test adopted by Yerkes and Bridges is more reasonable than that advocated by Binet; but it results in making the test too easy. This test no doubt is useful in demonstrating the marked automatism of low-grade defectives or of young children; but if included for this purpose, it should appear in the earlier year-groups. The test should be rejected because in most cases it fails to test suggestibility. The deliberate way in which most of the defectives even gave their judgments as to the last three pairs of lines, gave no indication that suggestion was an operative factor. To maintain, as Binet seems to do, that if a subject fails to judge the last three pairs to be constituted of lines of equal length, he is influenced by the previous judgments, is untenable. It is very rarely that a careful observer ever judges two lines to be of equal length. The positional illusion of right and left also operates in this test, and in many cases is the deciding factor of the judgment given.

There are also certain anomalies in the relative scores of the tests. It seems very doubtful whether it ought to be possible for a subject to score four points for drawing such simple designs as a square and lozenge, whereas he can score only two points for the harder task of arranging the five weights.

On the whole these data show that the modifications of the Binet Scale adopted in the Point Scale are justified, notwithstanding that the latter is more laborious to apply. The Point Scale, however, is based upon the same theoretical principles as the Binet Scale; and some, if not the majority of these, are most hypothetical. For instance, to accept without more evidence than is at present forthcoming such assumptions as that mental deficiency is a quantitative rather than a qualitative modification of intelligence, and that innate abilities can be measured in terms of mental maturity, would be likely to lead to many futile investigations.

¹ By “spread” is meant the number of year-groups of tests in which some of the tests are passed and others failed.

² Wallin, “Experimental Studies in Mental Deficiencies,” p. 30.

A NOTE ON THE ORIGIN OF "P.T. CENTRES" IN ENGLAND.

By A. P. BRADDOCK, M.A.

The celebrated means of providing for the efficient and systematic instruction of pupil teachers was developed widely after the institution of School Boards by the Education Act of 1870; it was then in no way a new idea, for it had already been devised and carried on for many years in connexion with the Roman Catholic Training College at Mount Pleasant, Liverpool.

Many schools in the town were under the care of the Sisters of Notre Dame, who took up the work of teaching there about 1851. The Training College was opened in 1856, and the Sisters, recognizing the importance of a supply of carefully trained candidates for admission, took especial interest in the studies and professional preparation of the girl P.T.s attached to their schools. They adopted a plan of collective instruction, bringing their P.T.s together in a hostel at Mount Pleasant for the purpose. The arrangement served to remove many conditions that had made the girls' work at home a matter of difficulty owing to distractions in domestic life and difficulties in travelling. Through the hostel the nuns were able to attract a good type of girl from a considerable distance to enter into apprenticeship in the Liverpool schools, and so could exercise a choice of candidates in the first instance. At the same time instruction could be given by those among the nuns specially interested and proficient in particular branches of the studies to be followed. Vigour and freshness were secured in this way in conjunction with the benefits of collective teaching, and a good social outlook due to the daily continuous intercourse between the girls and the nuns.

The results were very satisfactory, and the 'Centre' principle was copied at a number of religious houses in localities where there were several schools. It was generally applied more in the case of girls than of boys, and also in towns rather than in scattered areas, which did not lend themselves well to it. In 1858 it was reported that a "most striking result has been produced where religions, such as the Community of Notre Dame in Liverpool, are enabled to board and lodge the female P.T.s entrusted to their charge."

Writing on Secondary Education in Liverpool in 1904, Sir Michael Sadler stated:—"The Mount Pleasant (Convent of Notre Dame) P.T. Centre was the pioneer P.T. Centre in England. It has a history of forty-eight years. . . ." The Final Report of the Royal Commission on the Education Acts, 1888, also states that the first to deal systematically with the instruction of Pupil Teachers on a large scale were the authorities of the R.C. Training College at Liverpool. But many years before this (1873-4) Mr. Hughes, H.M.I., wrote:—"I wish to bear testimony to the good work carried on in Liverpool by the Sisters of Notre Dame in bringing up well-trained P.T.s. At their convent in Mount Pleasant they board about fifty pupil teachers, gathered from different parts of the country, who are employed in schools in the town taught by the Sisters; at the branch convent in Everton Valley about forty others are shortly to be received. The plan as it is here carried out appears to be an admirable one, and, under fitting circumstances, well worthy of adoption by other communities." The Liverpool School Board followed this advice after studying the system in operation at Mount Pleasant and in the Catholic Schools, and in 1876 Mr. Hughes reported their adoption of the plan for the girl P.T.s in their employment. But although the idea was copied, the Mount Pleasant girls maintained a good lead, and for many years carried off the prizes offered by the Liverpool Education Authority for general competition among all the P.T.s of the town.

In 1877 the London School Board established a "Centre" system and was by many people credited with having originated it. But while on a visit to Liverpool in 1882, Mr. Mundella, then Vice-President of the Education Department, said in a public speech, that when he made the change in the Code of 1880, which would admit of concentrated teaching for pupil teachers, the arguments advanced in favour of it were the great success that had attended the Catholic College in the teaching of their female pupil teachers, and the amount of the percentage of honours those teachers had carried off. "The London School Board have adopted, in imitation, what was first begun by the Catholics of this town, then by the Liverpool School Board, and finally by the Liverpool Council of Education."

In his report for 1877, Mr. Kennedy advocated the establishment of 'homes' for the P.T.s, and in reference to Liverpool, he remarked, "It is a pleasant sight to see the Sisters there who are mistresses of various schools in Liverpool, issuing forth in a morning and returning of an afternoon along with their many P.T.s who have their homes in the College."

Eleven years later Mr. Harrison referred to the success of the Sisters in training the P.T.s and the wonderful results in the Queen's Scholarship Examination. Unfortunately the development of the "Centre" system had in many places the effect of extending the gulf between pupil teachers and the head teachers of the schools in which the apprenticeship was being served. The "Report on the P.T. System" outlines the way in which this gulf was created and gradually widened until the relationship between the parties had almost disappeared, a fact considerably to the disadvantage of the P.T. of the time; Mr. Harrison expressed his opinion to the effect that collective instruction in Centres should be supplemental to the teachers' instruction, and that the link between teacher and P.T. should be retained.

As the Sisters at Liverpool carried out their ideas the link *was* retained; but, in the course of evolution among imitators, when the hostel was cut out, and the 'Centre' teachers were specialists, out of touch with the schools in which the P.T.s taught, the system showed what many people considered to be grave defects.

A DAY-DREAM.

"What, then, does the same thing sometimes appear small and sometimes great?"—Mr. Barlow.

IT was in one of those idle moments when we follow the lead of imagination into strange places that my imagination took me to the study of Thomas Day, the author of "Sandford and Merton," and showed him to me sitting before a cheerful fire, anticipating passing a pleasant evening with a pile of the most modern school stories. Now, Mr. Day himself had ideas about the regiment of women, and conducted some bold experiments in that sphere, so he was first attracted by a book from which he might hope to rectify his own mistakes. He reads through "Regiment of Women," therefore. At the end he sighs and says: "This is what I might have expected. This is just how Lucretia and Sabrina behaved when I took them to Avignon for their good. And did not Sabrina scream when I fired pistols, loaded only with imaginary balls, at her petticoat, and start when I dropped melted sealing-wax on her arms! Now I see that the education which these emotional creatures have been having has but heightened their faults. Has my Miss Simmons no descendants who could be put in charge of

our girls instead of these highly-strung, meanly narrow, unconvincingly attractive people?"

The next book our friend takes up is "The Loom of Youth." "Ah!" says he, "here is Master Tommy Merton describing himself and his friends; let me see whether he has changed since my day." He reads through "The Loom of Youth" and "The Harrovians." He is slightly bored by the amount of space given to descriptions of games, the revolt against the worship of athleticism interests him, as a revolt, since he is a believer in the merits of revolt generally. On the whole he comes to the conclusion that here, too, little has changed. The young gentlemen still display (with a difference) the same "amazing knowledge of buckles, buttons, and dressing of hair;" they still "take off the parson in the middle of his sermon;" Master Mash, who has imbibed in the stable the greatest interest in horses as agents for the winning of money, and is longing to be set free from the restraint of school in order to display the superiority of his genius at Ascot and Newmarket, has his counterpart in the Lovelace of "The Loom of Youth" who spends all his spare time laying bets, reckons up each night what he has lost or made, and confines his studies to "The Sportsman," of which he says: "This is my work. I am going on the turf." At the end of this book, too, Gordon, the hero, even seems to show a trace of that spirit which impelled Master Tommy Merton to utter the significant words: "Indeed, sir, I begin to think that I am not so much better than the others as I used to do."

With a more hopeful expression, our hero next turns to the modern Harry Merton. "Harry was always a good boy, he will not disappoint me now." He takes up "Nash and some others." "What! This rascal the descendant of good, tidy little Harry! This deviser of fly-traps the successor of Harry with whom 'even toads, frogs, and spiders were perfectly safe'; this shirker of his card of sums the progeny of the Harry who says, 'I hope if you will continue to teach me I shall very soon know the names and qualities of all the herbs that grow.'" Mr. Day rubs his eyes. Surely these writers are confounding Sandford with Merton! There must be a better representative of the modern Sandford. He turns to Alan Clay, the hero of "The Soul of a Teacher." This is, perhaps, a little better, for though he cannot commend Alan for deliberately extracting tears from his grandmother and her friend by his soulful reading of a tract, yet Alan is an ambitious worker, and he gains a scholarship to the local Grammar School, thus helping to bring about that mixing of the classes which it was the aim of good Mr. Barlow, the tutor, to foster. But alas for precedent! There is no good Mr. Barlow, Merton bullies and snubs Sandford, and Sandford's admirable diligence and forbearance produce no change of heart in Merton.

Lastly, then, what of the modern Mr. Barlow? Day's Mr. Barlow was regarded by the society of his day as an "odd kind of man, who never went to assemblies and played upon no kind of instrument." Our hero reads with a puzzled air the description in "The Soul of a Teacher" of the fashioning of a modern Mr. Barlow, whom society still regards in something the same light. He turns to "A Dominie's Log," where Mr. Barlow can be seen contemplating himself. There is a flavour of Rousseau about this young man which arouses Mr. Day's sympathy. He, however, who met his death through putting into practice his own theory, less well understands

"the Hamlet cramp" from which the Dominie suffers, but he recognizes the genus Barlow in the man who if he loses his post will try to live by selling sermons after school hours, for the original Barlow had a generous supply of sermons at his command. He is not, perhaps, so much troubled as are some modern readers by the picture of the modern Mr. Barlows from the pen of the modern Merton—"the teachers of youth most of whom had never at any time penetrated to the heart of anything," for luckily it occurs to him that Master Merton, for all his precocity, may not yet have penetrated to the hearts of the teachers of youth. But the net result of his reading has been to depress him. So much so that, although I reincarnated him for my own amusement, not his, I am seized with compunction, and, stepping forward from the shadow from which I have been watching him, address him in some such words as these: "Courage, my friend. Things are not so black as you suppose. As for the regiment of women, there are other ways of compassing it than are set forth within the covers of that book. Step outside with me for an hour and I can show you some of them; read your daily paper (I hope you get a choice of paper in those regions you now inhabit) and you will find many others. And you think that the glorious ideas that were seizing men's minds a hundred and fifty years ago seem after all to have taken but little hold. But, at any rate, we still have amongst us men who are discontented with the existing order of things, or we should not have had these very books which have disturbed your peace of mind." So saying, I snatch "Mr. Perrin and Mr. Trail" from his astonished grasp, and substituting for it "What Is and What Might Be," I dismiss him to limbo with my benediction.

M. M. GOUGH.

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THE TRAINING COLLEGES AND PUBLIC OPINION.*

1. T. RAYMONT, M.A.

I.

We live in times when the most important subjects that present themselves for discussion are often the least cheerful; times not only of conflict, but of heart-searching, and of that process of moral and spiritual stock-taking which, like a bitter draught, may be disagreeable, but may also be salutary. Such a time has, I believe, arrived in the history of the Training Colleges and of this Association. The task before me is not a pleasant one, but as I suggested that it should be undertaken, I could hardly do less than take some part in discharging it.

*At the Editor's request I have written the substance of my address, expanded from notes used at the time.

II.

Let me first summarize what I believe to be the broad facts. As far as the Board of Education are concerned, those officials and inspectors who have immediate relations with the Training Colleges are friendly towards them, and anxious for their welfare; but the attitude of the great mass of officials and inspectors cannot be so described. Directors of education, so far as they are interested in Training Colleges at all, too often sit in the seat of the scornful, telling us that a year's training is enough, if indeed training is needed at all. Local authorities, faced by the necessity, or the opportunity, of scrapping something in view of war exigencies, have on the whole shown themselves ready to scrap Training Colleges first. Public men, who know Universities and schools well enough, had never before heard of Training Colleges. Teachers in elementary schools, though second to none in point of personal loyalty to *alma mater*, desire a change, and in particular desire that the Training Colleges shall be brought into connexion with the Universities. We do not stand high in the opinion of secondary teachers, who are on the whole not satisfied with what the Training College does for their ex-pupils. The Universities are cold, though our chief hope probably lies in them. Even the University training departments are not, as a rule, if I am rightly informed by persons whose business it is to know, the objects of deep solicitude in academic quarters. Perhaps the whole position is reflected in the fact that Mr. Fisher, in his memorable speech of last August, did not mention the Training Colleges, though he referred to every other form of State-aided education, from the Universities down to the nursery schools. It could not have been because he knew nothing about Training Colleges, nor because he thought them unimportant. It might have been because he preferred to suspend judgment regarding them. A writer in the *Times Educational Supplement*, commenting on the omission, called the Training Colleges the most backward part of our educational system. As your President at the time, I might have taken up the challenge, but I resolved not to do so, partly because the subject could not be adequately treated in a letter or two, and partly because of my conviction that quiet, patient work is needed, rather than sporadic newspaper controversy.

III.

I do not suggest that all this criticism is to be taken "lying down." Much of it is surely the outcome of prejudice, or of information which is insufficient or even false. We must remember, too, that every class of educational institution is sharply criticised by other classes, and especially by those immediately above and below. But this criticism of the Training Colleges is too universal and insistent to be belittled or ignored. It is easy for us to blame others,—to blame the Board of Education for its bureaucratic methods, to blame the local authorities for failing to understand the functions of a Training College, to blame the Secondary Schools for sending us students ignorant of the things that they ought to know, and to blame the head teachers of elementary schools for judging by unfair standards the young teachers that we send them. But it is safer to blame ourselves, and to assume that the criticism means something for which we are at least partly responsible.

IV.

What, then, are the causes of this low general estimate of the Training Colleges? First among them I place the typical Englishman's inveterate disbelief in training anybody for anything. He believes in an apprenticeship, designed to enable young people to pick up the tips and tricks of their trade, and he derides what he is pleased to call "mere theory," thus putting himself in one respect at a great disadvantage as compared with the German. That is a national characteristic which is being combated in other spheres, and which we ought to combat in our sphere. But I am bound to press the question—Do we ourselves much more than half believe in training? Do not our discussions of curricula, especially when the relation of general and professional studies arises, reveal an anxiety on the part of some of us to convert our institutions into inferior copies of the University Colleges? Do we all believe in the adjective as well as the substantive when we speak of "Training Colleges"?

However that may be, it is certain that at present the Training Colleges are not in any of the main currents of national educational effort. On the whole they lie apart, and are in a sort of backwater. The real causes of this isolation are of course historical. The Training Colleges grew up apart, unconnected with any other form of adult education. I well remember that in the early days of the University training departments the late Sir Joshua Fitch, in one of his grandfatherly reports, expressed himself apprehensively as to the new movement, and advised that it should be watched carefully. He wrote pathetically of the "sheltered lives" which the dear young people in the Training Colleges had hitherto lived. Yes, they were far too sheltered. The true antithesis is not between being sheltered and being exposed, but between breathing a stifling and breathing a bracing atmosphere. The Training Colleges grew up in strict connexion with the elementary schools. With the passing of the old pupil-teacher system that strict connexion has vanished, and now they stand alone. The teaching profession has been strengthened by the change, but the Colleges have, in a sense, been weakened. We cannot, we simply cannot, send out students so *immediately* capable of tackling the situation in the schools as were the ex-students of a generation ago. *We* know the reasons, and know that they are good ones, but have we ever taken pains to make those reasons clear to others, and to draw their attention to the other side of the case?

V.

I am thus led to ask what we, as an Association, have done to counteract the causes I have mentioned. We have done little or nothing. We have no considered policy. Unanimity may be impracticable, and even undesirable, but surely we can hammer out something like a common policy. Our ineffectiveness may be illustrated by a very simple test,—the financial one. Let it not be said that this test is vulgar and inadequate, for there is a subtle and pervasive relationship between educational ideals and educational finance. Our nominal rate of subscription has been an accurate measure, not indeed of our faith in the possibilities of our work, but of the hopes we have felt justified in entertaining as to the extent to which this Association is likely to help us. Apply another test,—

our arrangements for the conduct of business. Our long and sorely tried Secretary took office at a time when the associated Colleges were comparatively few in number and perfectly similar in character. We are now a large and heterogeneous Association, but still he bears the burden alone. Other educational bodies, even the smallest of them, have had definite policies of reconstruction. We have had none. It is true that we have done good work in the reform of the curriculum, but, in recent years at least, mainly at the instance of the Board of Education. The more important subject of examinations remains untouched. What guarantee have you that, at the Final Examination, the questions are proposed and the answers marked by acknowledged experts in the several subjects? Only the guarantee that a person appointed to the inspectorate is of course a person of good general education,—a guarantee which no respectable University in the world would regard as sufficient.

VI.

Time fails me, or I could easily enlarge upon other vital matters, such as the position in respect of Demonstration Schools. You cannot go into all these details at this annual meeting, but there is one thing that you can do. Your old constitution, no longer adequate to the situation, is now a thing of the past. You can, and I hope you will, give your new Executive Committee a hearty send-off, and a clear and unmistakable mandate. You may disagree with me about details, but I trust there will be no marked or fundamental disagreement as to the absolute necessity of a root-and-branch reform in our methods, if the Training Colleges are to take their rightful place in the scheme of national education. I thank you for the patience with which you have listened. If I have detained you long, it is only because I believe the occasion to be a fateful one. Let us resolve that we will put our hands to the plough, and that, having done so, we will not look back.

2. Miss M. M. ALLAN.

I would rather have chosen for the title of my remarks "The Repute of the Training Colleges," for I do not think there is any public opinion about these institutions—the man in the street knows little and cares less about them. Even when we turn to professional circles, magazines, and the Press, all kind of institutions, schools, theories, and methods are canvassed, but little is said of Training Colleges. It is possible to introduce a Bill of far-reaching importance going far to re-model the whole status of the teacher with hardly a word said of his training. Lately, I have had an unusual opportunity of interviewing Members of Local Education Authorities, Officers of Local Education Authorities, Heads of Secondary and Elementary Schools, Assistant Teachers Certificated and Uncertificated, and I have been amazed at the unanimity of the opinion that the Training Colleges are in an educational backwater, detached, isolated, and in want of reform, conceiving their task inadequately, and performing it with but little success. One woe alone they are likely to escape, that pronounced upon those of whom all men speak well. From over thirty witnesses examined (although training was only a side issue and not the subject on which evidence was sought)

I do not remember one appreciative remark, while there were certainly many that were critical.

Turning first to the Board of Education itself. The Permanent Staff in the Training College Department are probably, understanding us best, those who appreciate us most, but one feels that even they experience some difficulty in our defence.

No doubt the improvement in recent years has been very marked, yet no one can feel that Training Colleges have that position in the educational world which properly belongs to them, or that in general the Training College Staffs are equal to their highly responsible work. We want to give Training Colleges a high and recognized position and to bring them into the general current of educational life.

The attitude of Inspectors of Elementary Schools is too often unsympathetic to the Colleges. It would be well if the Training College Inspectorate knew the schools better, and the School Inspector had ready access to the Training Colleges.

Amongst Members of Local Education Authorities, except where the Local Education Authority itself provides a College, few appear to be interested in our welfare. There seems to be little appreciation of what the real function of a Training College is. Method, so far from being conceived as the slowly acquired power to select matter in accordance with the development of the child, seems to be looked on as consisting of a few tricks which could readily be suggested to the student. Hence there is frequent suggestion that the course might be shortened to one year.

The Officers of the Local Education Authorities, too, emphasize the isolation of the Colleges. They wish us "to come down into the struggle" to "link up with the schools." When one points out that since the Training Colleges already attract some of the best of the Secondary School Staff, draw their students from Secondary Schools and pass them into Elementary Schools, they must of necessity be in touch with both systems, they emphasize the need of a more vital connexion producing a constant flow and interchange between the Training College and the Schools, both Elementary and Secondary. More ease in transfer of Training College Staff into and from schools is probably the most helpful point they make.

As regards the Heads of Secondary Schools, they certainly know more of us than they did a few years ago, but there is still much to be desired. They, too, seemed ignorant of the function of the Training College and of the nature of methodology, and criticized us as being neither University on the one hand, nor good Secondary School on the other, and (failing to appreciate the different angle from which the student in a Training College views her work when she studies it mainly with the child in her mind), they accused us of repeating work already done in school.

The Certificated Teachers, on the other hand, most stringently criticized the inadequacy of the practical professional work in the Colleges, and indeed it is somewhat hard to meet their criticism. The training is not so good, the older teachers maintain, 'as it was in our day'—a criticism directed no doubt partly at the Student Teacher year, as well as at the period in the Training Colleges. "It is not that the student cannot give a good lesson, but they do

not know children and therefore cannot manage them," may be taken as characteristic of their position.

Even the older *Uncertificated* teacher adds her criticism, and makes great sport of the young *Certificated* teacher fresh from College, half her age, but drawing nearly double her salary, who gets herself into fearful difficulties, especially with practical lessons like Needlework, and to whose rescue she is often asked to go by her harassed Head Mistress.

In face of these criticisms (which of course could be extended) might one suggest that the time has come when the Training Colleges should examine themselves as to whether these things are indeed so, or whether it is possible to produce some defence of the modern Training College? Should we not share in the reconstruction which surrounds us? A quite unparalleled opportunity exists for the reconstruction of the Men's Colleges, closed now, and their tradition broken by the great War. Surely the Training Colleges should stand in the centre, and be the heart and lungs of the whole educational system, sending fresh blood through every channel to the most remote extremity.

TRAINING COLLEGE ASSOCIATION.

ADDRESS OF PRESIDENT (REV. CANON H. WESLEY DENNIS).

I thank you all most sincerely for the honour you have done me in electing me for the third time to fill the important position of President of your Association. When you chose me as Vice-President a year ago I had no idea that, when the time came to fill the Chair, I should have severed my connexion of nearly twenty-three years as Principal with Battersea College, and withdrawn into the comparative obscurity of a Surrey Rectory. I felt it my duty to resign my succession to the Presidency, and have only taken up the post in answer to the expressed desire of your Committee that I should do so. I deeply value this mark of your confidence, and can only say that if and when and where I can render any service to this Association, and the welfare of our Training Colleges, I shall gladly give of my best to repay your generous kindness.

If you will pardon a personal reminiscence, it may be of passing interest to note that when I first filled this Chair, in 1900, our country was engaged in the bitter struggle of the Boer War. On the second occasion, in 1906, we were faced with an Education Bill. To-day, in 1918, we have both. I hope that you will not from this regard me as a "stormy petrel," but rather from the resultant issues of these two events look upon me as a dove of peace; for the war of 1900 was crowned by a grandly bold and generous experiment which gave self-government to our former foes and added a Colony to the Empire, members of which have in their thousands fought side by side with us as fellow-members of the Empire, while one of their Generals has rendered magnificent service in the field and in the council chamber, and has won the acclaim and confidence of all. The Bill of 1906 came apparently to nothing, but this is not really the case, for it led to a frank interchange of views between the leaders of religious thought

in education which I know has done much to remove misunderstandings and promote harmonious working for the good of the schools of the country.

May God grant that the present awful conflict be crowned with an issue as successful and full of promise as the South African campaign, and that the cause of justice and liberty, for which alone we entered upon the struggle, be gloriously vindicated.

As to the promised Bill, we do not anticipate the fate of its predecessor in 1906, but heartily desire its successful and speedy passing into law. As regards our special work, in 1906 the training of teachers was left untouched, and in 1917-18 this all-important branch of the educational system receives only passing mention; but that passing mention has within it great possibilities, of which I shall venture to speak presently.

I earnestly desire, in my reference to past history, to record my, and I am sure I may say your, unqualified satisfaction at our present relations with the Board of Education. In 1906 I was compelled, as your President, to make a strong, though I trust respectful, protest against the policy of neglect and indifference with which this Association and the Training Colleges it represented were treated. To-day, most happily, and for some years past, this position has entirely changed. The Board has sought of its own initiative the counsel of the Colleges on many points; it has given us its confidence, and I trust that it has been repaid by the loyal co-operation with which we have always endeavoured to carry out its desires and aims. Of the personal courtesy and kindness of the Board's officials we hear to-day on all sides nothing but praise and grateful recognition. In connexion with this subject, I would wish to mention one name, that of Principal Loring, who alike as a member and President of this Association left no stone unturned to establish and secure this new and happy relationship. Alas! he has made the great sacrifice, and we mourn the loss, while we honour the memory, of a gallant English gentleman.

We are to be honoured to-day by the presence of the President of the Board of Education, who will, I hope, be able to show us how we can best help in forwarding his plans for the deepening and strengthening of the educational life of the country. He may rest assured that he has and will have our unanimous and unfailing support for his far-reaching proposals in extending the period of school life, and in providing for and linking up continued education. He has also our sincere gratitude for his financial measures for the recognition of the teacher's work and heavy responsibilities. We hope that these wise measures, too long delayed, will not only help to reward past services, but also prove a means of attracting to the profession much-needed recruits.

The proposals of the Bill, so far as I can see, only affect our colleges in two places: the first in the call upon local Education Authorities "to submit schemes when required by the Board, showing the mode in which their duties and powers under the Education Acts are to be performed and exercised." The second, the emphasizing of the duty of the Local Education Authority "to make adequate and suitable arrangements for co-operating with authorities exercising powers under the Act of 1902 in matters of common interest, and particularly in respect of the supply of and training of teachers, and

when required by the Board of Education to submit to them schemes for the purposes aforesaid." This represents an advance on the Bill of 1902 which only gave permissive power to deal with the training of teachers. Under the present Bill a scheme may be called for, and the obligation is made clear. This may mean much.

I would emphasize briefly in this connexion two problems with the successful solution of which we are all concerned: the supply of material for the teaching profession and the provision for training that supply.

I have always felt myself that, quite apart from the financial question of inadequate salaries, the securing of the supply was grievously hampered by the want of a just and general policy. Hence I welcome the opening words of the Bill "aiming at the establishment of a national system of public education" and the clear references to co-operation as full of promise.

In the past some parts of the country did their duty and others did nothing: some produced bursars, student-teachers and pupil-teachers, and others secured the finished article, the trained teacher, by offering a higher scale of salary, which no doubt they could afford from their avoidance of the expense of training. This is obviously unfair, and shows the necessity for a general scheme under which each area, according to its need, should be held responsible for the provision of its quota, or if it lacked facilities for finding or training the material, it should furnish the necessary funds to secure its quota of teachers. The experience of our colleges goes to show that some parts of the country produce, owing to local conditions, many more candidates for the teaching profession than others. There is no harm in this, if the material is of the right sort, and if every part bears its legitimate share of the expense in securing and training the needful supply so that the cost of the provision of the necessary number of teachers for a given area is found by the authorities of that area, even though, as I have suggested, for convenience and owing to local conditions, the material is found and trained elsewhere. I am satisfied myself that with a scheme of general application wisely and generously planned, with room for co-operation and reciprocal help, far more might be done than has so far ever been done to secure a steady supply of recruits for the teaching profession. So far, practically all efforts have been isolated and disconnected. A common policy and loyal partnership are urgently needed, and the Bill seems to promise both.

As to the other problem—the provision for the training of teachers—I have always advocated a national policy in the field of training college work, and by that I mean a policy based on the recognition of the fact that a nation is made up of many sorts, and that a true national policy will make the best use of all these sorts for the common good. I am afraid of the narrowing outlook and selfish influence of "parochialism": I am afraid of the ungenerous competition which easily results when people engaged in a common work are regarded as rivals not as comrades: I am afraid of the underselling and outbidding methods, poor enough in trade and quite unworthy in a great national work: I am afraid no less of the limited outlook which comes from confining the budding teacher to his own locality instead of sending him out and away to learn more of the world of which he

is a citizen and a trainer of citizens. If we ask of the little Englander, "What do they know of England who only England know?" what shall the teacher reply to the question, "What do you know of England, who only — know?" You may fill in the blank from your own experience of strictly local training.

I plead for the frank recognition on equal terms of all properly-equipped training institutions, and their ready inclusion in a genuine national system: I plead for the freedom of the student to choose the college which he would wish to enter, and to take with him his local grant towards his training, and I would encourage him for his own sake, and the sake of his future work, to go from home: I feel (and I speak with some practical experience) that a townsman is better away from his own town, and that a countryman is the better for feeling the pulse of a great city. I hope that a more generous and enlightened policy on the part of our Universities will yet devise some means of bringing the wider outlook of University life within the range of all our students.

I plead therefore for a National Scheme for the supply and training of teachers, under which the Board, through and with the Local Education Authorities, (1) will carefully enquire into and estimate the needs of the schools over, say, a quinquennial period, and will see that the necessary provision for supplying and training the agreed percentage of trained teachers on the staff exists or is made, (2) that under this scheme, subject to every right and proper safeguard of economy and efficiency, the Board shall utilize all existing institutions without regard to denominational differences, and encourage them to contribute to the national life all the vigour, initiative, and enthusiasm which spring from independent voluntary effort. The time is ripe for generous measures: the spirit of unity and sacrifice is everywhere active. Let us sink quarrels, jealousies, distrust, and let all educational bodies, whether local authorities or voluntary associations, aim at a true national policy which will secure an educated nation trained in the spirit of service to God and country.

Are we ready to play our part? It is easy and common just now to shelve awkward questions by saying we will see what can be done "after the war." I urge that some problems should be dealt with now, and I am glad to see from our agenda that we in this Association are preparing to take stock of ourselves frankly, and, by trying to see ourselves as others see us, to make our work more effective, and prepare to answer the call upon us, whatever it may be.

I am no longer one of your working members on the staff of a college, and may therefore be allowed to say what you would hesitate to say. My long experience of training college work has impressed me with the fact that there cannot be in any branch of educational work a body of teachers more hard-working, earnest, and anxious to improve than the men and women who form the staffs of our colleges. Training colleges are not, as a rule, given to advertising, their purpose and work are little known. I doubt if one man in a thousand could tell you what a training college is; even M.P.'s have been known not to know. The result is that, when subjected to criticism, our colleges are criticized with the freedom, not to say irresponsible temerity, of the speaker who feels secure from reply. I say this, not because I fear criticism or

deprecate self-examination, nay I welcome it, but because I do not think that we need be unduly discouraged if hard things are said of us.

I sincerely hope that the teachers in our training colleges will share in the improved prospects of their fellow-teachers in the schools. It is obvious that, if the best use is to be made of the material entrusted to us, the men and women chosen to mould it must be teachers of standing, experience, and real personality who will command the full confidence of their students, and be well fitted to guide them. It is equally obvious that such men and women are not to be had in sufficient numbers unless the prospects not merely of salary are better, and teachers see from experience that work in a training college is not a blind alley. Some years ago it was customary for the brilliant young graduate from the University to seek a post in a training college for a few weeks or possibly months so as to qualify for the inspectorate. I have sometimes been tempted to think that if the influence of the college was so rapidly beneficent with the young and inexperienced teacher, it was just possible that some years faithful and successful service in such institutions in the case of well-qualified and experienced men and women should give them a strong claim to be regarded as fit and proper persons for the inspectoral or administrative work of the Board and Education Authorities.

I will touch on one more topic only, which concerns our Men's Colleges so deeply affected by the war. During these last three most trying years the Board have generously recognized the unparalleled position in which they were placed. Parliament itself has more than once been impressed by the figures which showed how gladly our students, before the days of conscription, responded to the call of their country, and now, as our discharged sick and wounded—gassed, maimed, and blind—begin to come back, we shall want generous treatment for a period of years, which will enable colleges to reopen, perhaps with small numbers, and welcoming special classes of men. We may need, perhaps, some colleges for blind, others for seriously maimed, and we ought to feel assured that such provision shall be adequately financed while it is necessary, and that a college, devoting itself for a time to such necessary and noble work, shall be encouraged and helped to take up its old work again, when the special need is over.

My last word is this: we must all have noticed with deep satisfaction the emphasis again and again laid by the President of the Board on the need of character in all branches of Education. Nowhere is this more vital than in our colleges for teachers. We have under our charge a body of men and women who will exercise in their daily work a wider and more lasting influence in shaping character than is given to any other profession: we must needs see to it that we are shaping the trainers aright. We must in our colleges stand therefore for what is best and highest in the national life, and aim above all things at sending out from our walls an army of men and women, not only physically and mentally fit, but inspired with high ideals and noble aims in the service of God and country.

TRAINING COLLEGE ASSOCIATION

(with which is amalgamated the Teachers' Training Association).

TWENTY-SIXTH ANNUAL GENERAL MEETING, JANUARY 8TH, 1918,
HELD AT UNIVERSITY COLLEGE, LONDON.

Morning Session.

Mr. T. Raymont (President) in the chair.

- (1) The minutes of the last annual general meeting were read and confirmed.
- (2) Miss F. Johnson and Professor A. E. Dean were appointed scrutineers of the voting papers.
- (3) The annual report and cash statement for 1917 were adopted.
[Rev. Canon H. Wesley Dennis, President for 1918, here took the chair.]
- (4) Hearty votes of thanks were accorded to the outgoing officers for their services during the past year, on the motion of Professor Henderson and Mr. Braddock. Mr. T. Raymont replied.
- (5) The following resolution, proposed by Mr. Raymont and seconded by Miss Forth, was carried *nem. con.*:—"That this Meeting of the Training College Association urges on the Government the great national importance of proceeding with Mr. Fisher's Bill at the earliest possible opportunity."
- (6) The President then delivered the Presidential Address, for which a hearty vote of thanks was accorded him, on the motion of Rev. Canon Blofeld and Rev. R. L. Collins. It was decided that the President's Address should be printed.
- (7) It was decided, after some discussion, that the dates of the two ordinary meetings in the year should be the second Saturday in March and the first Saturday in November, the latter at Sheffield. It was also decided that the next Annual General Meeting be held in January, 1919, in connexion with the Annual Conference of Educational Associations.
- (8) The claims of the Teachers' Register, especially upon the members of the Staffs of our Training Colleges, were urged by Professor Adams, the representative of the Association on the Teachers' Registration Council.
- (9) A private discussion followed on "Our Training Colleges and public opinion," and it was decided that the Executive Committee be instructed to consider carefully the criticisms passed, and to report at the March ordinary meeting.
- (10) The following elections for 1918 were declared:—

Vice-Presidents—Miss W. Mercier.

Rev. V. W. Pearson.

Hon. Secretary—Major H. E. Griffiths.

Executive Committee—

- | | |
|-------------|---|
| Group I. | Professor T. P. Nunn.
Miss Robertson.
Professor H. Bompas Smith.
*Dr. Unstead. |
| Group IIA. | Miss A. Lloyd Evans.
Dr. Sleight. |
| Group IIB. | Mr. R. Delaney.
Mr. T. P. Holgate. |
| Group IIIA. | Rev. H. A. Bren.
Rev. R. Hudson.
Mr. J. W. Jarvis.
Mr. F. G. Perrins. |
| Group IIIB. | Miss M. M. Allan.
Miss B. Forth.
Miss Gowan.
Miss Noakes. |

* As Dr. Unstead is unable to serve, Miss Lilley becomes a representative of this group.

Afternoon Session.

- (1) An address was given by the Right Hon. H. A. L. Fisher, President of the Board of Education.

A cordial vote of thanks was accorded Mr. Fisher for his address and "for the work he has been and is doing," on the motion of Prof. Adams and Prof. Green.

- (2) A discussion followed on the question of adopting the policy of the substitution of a three-year course for the present two-year course.

Mr. Welpton, Prof. Nunn, Mr. Burgess, Miss Luard, Miss Forth, Miss Stephenson, Mr. Raymont, and Prof. Dean took part in the discussion, and the following resolution was carried *nem. con.*:—

"That this Meeting refer the subject to the consideration of the Executive Committee and to the Northern Branch of the Association, and that they be asked to prepare memoranda to be dealt with at one of the ordinary meetings of the Association (say the one to be held at Sheffield)."

- (3) The subject of "Land Service of Women Students in Training Colleges" was brought up, and the ex-President explained that the General Committee in October had decided against the Board's proposal that the Final Examination should be held earlier and vacations shortened in order to enable women students to work on the land. After the matter had again been before the Representative Sub-committee in November, a deputation was received by the Board. It was found that the Board had over-estimated the requirements, and that it would be sufficient to make use of first-year women students only. This had been communicated to the Colleges by the Board.

- (4) A discussion on "The relation between the Secondary Training Course and Four-year Elementary Training Course" was opened by Prof. J. A. Green. The following took part:—Mr. Welpton, Miss Johnstone, Rev. V. W. Pearson, Mr. T. Raymont, Miss Wood, and the following resolution was passed *nem. con.*:—

"That this Association believes that the training of teachers for the national service of education should be put upon a common professional basis, and that in particular the regulations for the training of secondary teachers should be re-cast and assimilated with those for the training of four-year students."

- (5) A resolution standing in the names of Miss Mercier and Prof. Bompas Smith (and brought forward by Prof. T. P. Nunn, in the absence of the movers), proposed the appointment of a committee to consider means for bringing the national need for teachers before men and women now engaged on National Service, and to make such men and women acquainted with the opportunities which now exist, or may be provided, for becoming fully-qualified teachers.

After some discussion, in which Prof. Nunn, Mr. Burgess, Mr. Holgate, and Miss Hindshaw took part, it was decided that Miss Mercier and Prof. Bompas Smith be asked to formulate their proposals and lay the same personally before the Executive Committee, who will report to the March meeting of the Association.

- (6) On the proposal of Miss Forth, it was agreed that steps be taken to form a sub-committee to deal with the syllabuses of Physical Training and Hygiene, with a view to bringing their suggestions before the Board of Education at an early opportunity.
- (7) The proposal of Mr. Burgess (deferred from the morning session) that the subscription be increased to 10/6 was then taken, and it was agreed that the matter be left to the Executive Committee to deal with, in connexion with No. 9 of the morning session.

REVIEWS.

Cambridge Essays on Education. Edited by A. C. Benson, with an Introduction by the Right Hon. Viscount Bryce. (xix + 232 pp.) Cambridge University Press. 6/- net.

THE volume presents a remarkably interesting collection of what may perhaps be called "the best opinion" on a variety of important educational topics. So far as they are written by schoolmasters, they do not greatly help those of us who are anxious to see an educational practice based on something approaching ascertained fact. They strike a very human note, however, and "opinion" which is well marshalled and attractively presented may be helpful, though it is difficult to appraise its real value except by quoting equally authoritative counter-opinion. At the same time, there is a most welcome freedom from dogmatic assertion, and a frank statement of difficulties felt, such as greatly increase our respect for the book as a whole.

Perhaps it is this feeling of unsolved difficulty at the back of the minds of most of the contributors which gives the volume a more than ordinary unity in spite of the widely divergent topics discussed. Mr. Vaughan's problem is how to spiritualize education, and although he has religion particularly in mind, he realizes the futility of putting religious instruction into a special compartment of its own. Dr. Bateson, who roundly declares that Agnosticism is the life and mainspring of science, is not less concerned with the spiritual life of the boy; and Dean Inge, whose essay is devoted to the training of the reason, brings it to a close in these words:—"To awaken the soul; to hold up before it the images of whatsoever things are true, lovely, noble, pure, and of good report; and to remove the obstacles which stunt and cripple the mind; this is the work we have called the Training of the Reason." The same call for spiritual quality rings through Mr. Paton's discussion of the "Aim of Educational Reform." To put the educational problem in this way is to discount specific prescription. It is just when suggestions of curricula are offered that the difficulty begins, chiefly because it is just at that point that the "practical" man begins to find an educational article attractive. Happily there is very little in this book which will help that least admirable type of schoolmaster whose horizon is bounded by scholarships and whose great interest in life is pot-hunting on behalf of his clever boys—a type which is not yet wholly extinct.

The book is a timely production, and every essay is readable. The Editor writes on "The Training of the Imagination," Mr. Mansbridge on "Citizenship," Mr. Nowell Smith on "The Place of Literature in Education," Mr. Malin on "Athletics," Mr. Badley on "The Use of Leisure," Sir John Maclure on "Preparation for Practical Life," and Mr. Roscoe on "Teaching as a Profession." Truly an excellent team!

The School and Other Educators. By John Clarke. London: Longmans. Price 5/- net.

THERE never was a time when the expression of convictions on questions affecting educational progress was more welcome than at present. From representatives of every grade and every type, from teachers and trainers of teachers, from parents and the public generally, all aspects and points of view contribute to the value of the resultant. So, too, from every direction, north, south, east, west, it is of promise for the future that contributions should come to swell the current of educational aspiration and inspiration. Mr. Clarke brings into his writing something of the bracing vigour and common sense from the North of Scotland, and a good title for a book is followed by balanced views, the outcome of thought and experience. The writer recognizes that we are in an age of transition. He

reminds us that if we remember that the elementary schools of Great Britain contain nearly 7,000,000 pupils, "the magnitude of the issues (of education) for national well-being may be imagined." He sees that the school is only one of the educators, and pleads for the rousing to the due sense of educational responsibility of the home, in the sphere of physical care, moral training, and "godly upbringing." It is not enough to have good teaching in the schools (though that is essential), and medical inspection to repair physical shortcomings in the health and energy of pupils (though that, too, is essential), but "positive efforts," says Mr. Clarke, should be made "to ensure the preparation of prospective parents for *their* duties." How to secure due parental co-operation in education is a pressing problem. The suggestion may, indeed, come from teachers like Mr. Clarke, but progress can only be really secured in this direction by the growing conviction amongst the parents themselves of their own educational responsibility, a conviction which we may reasonably expect in the future to be as keen as, say, the conviction amongst teachers of the importance of small classes. Mr. Clarke writes very suggestively with regard to many details of educational defects and remedies. But it is the great merit of his valuable book to emphasize the point that "nothing short of whole-hearted co-operation among all agencies (of society) can afford hope of success." It is largely by earnest, convinced writing such as his, from an ever-increasing number of centres in our country, that we shall come to realize, as he says, "Education *means* more to us than any former age dreamt of." If we interpret Mr. Clarke's statement in terms of extension rather than intension, we quite agree. Anyway, we thank him for his very vigorous and helpful book.

William Wordsworth, *A Selection from the Poems*. Edited by A. Hamilton Thompson. (xl + 203 pp.) Cambridge University Press. 2/6 net.

A NEW volume in the Cambridge series of Romantic Poets is a welcome sign of the continued liveliness of literary studies in our schools and training colleges. This volume contains about 100 pages of text. The rest is taken up with introduction and notes. Both notes and introduction are helpful—perhaps the Editor is almost too indulgent to the lazy mind. Instead of telling so much, would it not be more educative to put a pointed question in a note? At the same time, it is only fair to say that there is not an uninteresting comment in the book, though we should think that Wordsworth should tell his message for himself whenever possible. The student is apt to think the notes matter more than the text.

The Dawn of Mind. By Margaret Drummond. (xi + 179 pp.) E. Arnold. 3/6 net.

THE great value of this book lies in its concrete treatment of the subject. It is in no sense a psychology or even a satisfactory substitute for an elementary knowledge of that subject, but the charming pictures of children grappling with the world about them which Miss Drummond brings together make very attractive reading. It is a book which all who are concerned with little children should read, and they will read it to still greater advantage if they bring to its consideration a rather more adequate equipment in psychology than the book itself provides.

The Future of Public School Education. By D. B. Somervell. (29 pp.) Oxford University Press. 1/6 net.

WITHOUT pretentiousness of any kind, the author draws a severe and convincing indictment of the current curriculum of the present-day public schools, and makes interesting suggestions for reconstruction. "What an educated man ought to know" is his text, and his message is not without point in reference to all secondary schools. The pass courses of our Universities even might consider his positions with advantage.

NOTES.

THERE are welcome signs that the Training College Association is waking to a sense of the work it can do in fashioning the future of English Education. Owing to the difficulty of holding frequent meetings representative of the whole Association, would it not be useful to divide the main body up into branches with an organization of their own? We have a Northern Branch and a London Branch meeting regularly. Why not make the principle applicable to the whole country? Then the main committee might draw up a programme of work to be done simultaneously by the branch committee—or *ad hoc* committees of the branches—and thus get the mind of the whole body applied to specific reforms. As at present constituted there is a danger of London having an undue weight in our Councils, not because London members wish it, but because they can always attend meetings. Again, if we are to have branches, their work should be linked in some way to that of the main body. Organization is urgently necessary.

The Educational Handwork Association is regretfully compelled to leave Scarborough until the war is over. They are joining forces with the County Councils of North Wales, and holding what promises to be a great school at Bangor, N. Wales, where the University College Authorities and the Normal College have offered hospitality. They are also moving their Lancaster School to St. Anne's owing to the difficulty of finding suitable hostel accommodation in the old city. Interesting programmes are being prepared for both centres. The new Bill and its requirements are being specially kept in mind.

The Report of the Uplands Association for 1917 is an interesting record of pioneer work done under the general guidance of Professor Findlay. Amongst other lecturers we note the names of Principal Hains (Continued Education). Mr. E. G. Lamborn (*School Curriculum*), Mr. S. F. Jackson (*Child Study and Social Psychology*). Miss Pugh (*Gardening and Nature Study*). Miss Findlay (*Eurhythmics*).

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THE PSYCHOLOGY OF NUMBER.

A STUDY OF NUMERICAL ABILITY.

By R. C. MOORE, M.A., M.Sc.

Introduction.

MANY psychologists¹ during recent years have been carrying out investigations on "General Mental Ability." Researches have been made with the object of throwing light upon its nature, and systems of tests have been devised for the purpose of its measurement. Side by side with this movement there has been a considerable amount of original work done on "Specialized Mental Ability," i.e., mental ability in some particular direction in distinction from *general* mental ability. The data thus obtained besides giving insight into various particular mental processes also throw light upon the more complex problem of general mental ability.

Numerical or mathematical ability is one such specialized ability. An attempt is made to develop and train it in every school. In many professions and businesses² it is of especial importance, while it is required to be utilized to a greater or less extent by everybody. A number of investigations with reference to it have already been undertaken.

These researches have been chiefly in connexion with :

- (1) The study of mathematical ability from a general standpoint; the determination of norms of performance; the relation of ability in one branch of mathematics (e.g., algebra) to ability in another branch (e.g., geometry), and the relation of numerical ability to other special abilities.³
- (2) The study of some particular aspect of numerical work and the effect of altered conditions upon it.⁴

Very little research⁵ has been done with respect to the analysis of the inter-relation between the various factors which arise in numerical work, and yet this is of paramount importance in a study of numerical ability.

The simple number tables are the foundation upon which all later numerical work is based. It is impossible to do addition and subtraction sums without a knowledge of and ability to use the addition and

¹ Prominent among these are Brown, Burt, and Spearman, who approached the problem by the Correlational Method; and Binet, Simon, and Goddard, who used the Age-Scale system.

² e.g., Banking, Insurance, Accountancy, Engineering, and Scientific Work.

³ Ballard, P. B.: "Norms of Performance in the Fundamental Processes of Arithmetic, with suggestions for their Improvement." *This Journal*, 1914, vol. 2, p. 396; also 1915, vol. 3, p. 9.

Green, J. A.: "Normal Performances in Fundamental Arithmetical Processes." *This Journal*, 1916, Vol. 3, p. 318.

Gray, P. L.: "Norms of Performance in the Fundamental Processes of Arithmetic." *This Journal*, 1916, vol. 3, p. 310.

Burt, C.: "The Distribution and Relations of Educational Abilities." 1917, P. S. King & Son, Ltd.

⁴ Thorndike, E. L.: "The Form of the Curve of Practice in the Case of Addition." *Amer. J. of Psych.*, 1915, vol. 26, p. 247.

Starch, D.: "Transfer of Training in Arithmetical Operations." *J. of Ed. Psych.* 1911, vol. 2, p. 306.

Chapman, J. C.: "A Study of Initial Spurt in the Case of Addition." *J. of Ed. Psych.*, 1915, vol. 6, p. 419.

Thorndike, E. L.: "On the Relation between Speed and Accuracy in Addition." *J. of Ed. Psych.*, 1914, vol. 5, p. 537.

⁵ Brown has investigated various factors which arise in mathematical work, vide Brown, W.:

"An Objective Study of Mathematical Intelligence." *Biometrika*, 1910, vol. 7, p. 352.

subtraction tables; also the mastery of the multiplication table is a necessary preliminary to the working of multiplication and division sums. Hence, before the fundamental processes of addition, subtraction, multiplication and division can be thoroughly studied it is necessary to investigate the subject's knowledge of, and ability to use the simple tables. Knowing this, the influence of ability at tables or ability in the fundamental processes can then be investigated. In a similar manner when the fundamental processes have been analysed, it is possible to work out the dependence upon them of higher numerical work. Proceeding in this way from the simple to the complex, it will be possible to build up a considerable amount of knowledge on the Psychology of Number.

The present research is an attempt

- (1) To study the fundamental factors and processes which are the bases of all numerical work.
- (2) To find out the relations between them and to investigate the nature of the dependence of somewhat more complex numerical processes upon these fundamental ones.
- (3) To ascertain if ability in the numerical factors and processes investigated varies with sex.

The subjects tested attended an elementary school in a suburb of Liverpool. Boys and girls aged eight and nine years were tested. The numbers of the subjects of each age and sex are shown in Table I.

TABLE I.

	9 years.	8 years.	Both Ages.
Boys	34	25	59
Girls	40	31	71
Total... ..	74	56	130

The tests used consisted of:—

1. Tests of the addition, subtraction, multiplication and division tables.
2. Tests of the fundamental processes of addition, subtraction, multiplication and division.
3. Tests of money sums which involved the use of the tables and fundamental processes.
4. Tests of length sums, similar in type to the money sums.
5. Problem tests.

The number of examples set in any given test was decided by preliminary tests on groups of children other than those tested.

The length of each test was arranged so that no child finished it in the time allowed.

The children were allowed five minutes rest after one test before the next was commenced. Each test was explained in detail before being carried out, and illustrative examples (not occurring in the test papers) were worked on the blackboard. The tests were cyclostyled on one side only of sheets of paper, foolscap size. For every test two sets

of examples were drawn up, containing the same number of sums of the same degree of difficulty. Each test was repeated twice, the first set of examples being used for the first trial and the second set for the final one. The children, while being tested, were in a room by themselves, and thus away from extraneous influences due to the presence of other children engaged on different work.

A sample of each test, the number of examples set, the time allowed and the system of marking, are given below.

Description of Tests.

ADDITION TABLE.

Sample of Test:—

6	5	8	3	4
4	7	3	1	9
—	—	—	—	—
—	—	—	—	—

Ninety examples were set, and a period of two minutes was allowed for the test. One mark was given for each correct answer.

SUBTRACTION TABLE.

Sample of Test:—

8	7	4	5	9
4	2	3	4	7
—	—	—	—	—
—	—	—	—	—

The number of examples set, time allowed, and system of marking were the same as for the "Addition Table" test.

MULTIPLICATION TABLE.

Sample of Test:—

$$9 \times 3 = \quad ; 8 \times 5 = \quad ; 6 \times 2 = \quad ; 7 \times 4 = \quad ; 3 \times 6 = \quad ;$$

The number of examples set, time allowed, and system of marking were the same as for the "Addition Table" test.

DIVISION TABLE.

Sample of Test:—

$$8 \overline{)73} \quad ; \quad 4 \overline{)35} \quad ; \quad 7 \overline{)54} \quad ; \quad 5 \overline{)67} \quad ; \quad 3 \overline{)29} \quad ;$$

Sixty examples were set, and a period of five minutes was allowed for the test. One mark was given for each correct answer.

ADDITION SUMS.

Sample of Test:—

138	402	454	393	107
245	156	212	189	568
387	219	276	292	255
—	—	—	—	—
—	—	—	—	—

Forty examples were set, and a period of five minutes was allowed for the test. Three marks were given for each correct sum, one mark

for the correct answer to each column of figures. Sums partially correct obtained two marks or one mark according to the number of columns added up correctly.

SUBTRACTION SUMS.

Sample of Test:—

342	519	728	463	637
239	184	457	292	448
—	—	—	—	—
—	—	—	—	—

The number of examples set, time allowed, and system of marking were the same as for the "Addition Sums" test.

MULTIPLICATION SUMS.

Sample of Test:—

35	89	71	58	65
6	5	2	7	9
—	—	—	—	—
—	—	—	—	—

Seventy examples were set, and a period of five minutes was allowed for the test. Three marks were given for each correct sum, one mark for each correct figure in the answer. Sums partially correct obtained two marks or one mark according to the number of correct figures in the answer.

DIVISION SUMS.

Sample of Test:—

5)463	;	8)747	;	3)615	;	5)124	;	2)536	;
—		—		—		—		—	

Thirty examples were set. The time allowed and system of marking were the same as for the "Multiplication Sums" test.

MONEY TABLE.

Sample of Test:—

Pence	s.	d.	Farthings	d.	f.	shillings	£	s.
21=			;	7=		;	94=	;
s.	d.	pence.	£	s.	d.	shillings.	d.	halfpennies.
4	9=		;	1	6	0=	;	4½=

Fifty examples were set, and a period of five minutes was allowed for the test. One mark was given for each correct answer.

ADDITION OF MONEY.

Sample of Test:—

£	s.	d.	£	s.	d.	£	s.	d.
2	2	3¼	8	13	5¼	1	9	7½
3	19	7¼	7	4	8½	4	3	6¼
—			—			—		
—			—			—		

Thirty examples were set, and a period of five minutes was allowed for the test. Four marks were given for each correct sum, one mark being given for the right answer to each of the following four component parts: farthings, pence, shillings, and pounds. Sums partially

correct obtained three marks, two marks, or one mark, according to the number of correct component answers.

SUBTRACTION OF MONEY.

Sample of Test:—

$$\begin{array}{rrr} \text{£} & \text{s.} & \text{d.} \\ 3 & 3 & 6\frac{1}{2} \\ 1 & 1 & 4\frac{1}{4} \\ \hline & & \end{array}$$

$$\begin{array}{rrr} \text{£} & \text{s.} & \text{d.} \\ 7 & 4 & 2\frac{3}{4} \\ 5 & 12 & 6\frac{1}{2} \\ \hline & & \end{array}$$

$$\begin{array}{rrr} \text{£} & \text{s.} & \text{d.} \\ 6 & 5 & 0\frac{1}{4} \\ 2 & 2 & 9\frac{1}{2} \\ \hline & & \end{array}$$

The number of examples, time allowed, and system of marking were the same as for the "Addition of Money" test.

MULTIPLICATION OF MONEY.

Sample of Test:—

$$\begin{array}{rrr} \text{£} & \text{s.} & \text{d.} \\ 3 & 6 & 4\frac{1}{2} \\ & & 4 \\ \hline & & \end{array}$$

$$\begin{array}{rrr} \text{£} & \text{s.} & \text{d.} \\ 6 & 5 & 2\frac{1}{4} \\ & & 7 \\ \hline & & \end{array}$$

$$\begin{array}{rrr} \text{£} & \text{s.} & \text{d.} \\ 9 & 7 & 6\frac{3}{4} \\ & & 3 \\ \hline & & \end{array}$$

The number of examples, time allowed, and system of marking were the same as for the "Addition of Money" test.

DIVISION OF MONEY.

Sample of Test:—

$$\begin{array}{rrr} \text{£} & \text{s.} & \text{d.} \\ 6 \overline{)22} & 3 & 5 \end{array}$$

$$\begin{array}{rrr} \text{£} & \text{s.} & \text{d.} \\ 4 \overline{)13} & 9 & 8\frac{1}{2} \end{array}$$

$$\begin{array}{rrr} \text{£} & \text{s.} & \text{d.} \\ 7 \overline{)48} & 3 & 7\frac{1}{4} \end{array}$$

A period of ten minutes was allowed for the test. The number of examples and system of marking were the same as for the "Addition of Money" test.

LENGTH TABLE.

Sample of Test:—

$$\begin{array}{llllllll} \text{ins.} & \text{ft.} & \text{ins.} & & \text{ft.} & \text{yds.} & \text{ft.} & \text{ins.} & \text{ft.} & \text{ins.} \\ 35= & & & ; & 17= & & & ; & 81= & & ; \\ \text{ft.} & \text{ins.} & \text{ins.} & & \text{yds.} & \text{ft.} & \text{ft.} & & \text{ft.} & \text{ins.} & \text{ins.} \\ 7 & 5= & & ; & 3 & 2= & & ; & 4 & 10= & ; \end{array}$$

Sixty examples were set, and a period of five minutes was allowed for the test. One mark was given for each correct answer.

ADDITION OF LENGTH.

Sample of Test:—

$$\begin{array}{rrr} \text{yds.} & \text{ft.} & \text{ins.} \\ 3 & 2 & 8 \\ 2 & 2 & 7 \\ \hline & & \end{array}$$

$$\begin{array}{rrr} \text{yds.} & \text{ft.} & \text{ins.} \\ 6 & 1 & 4 \\ 4 & 1 & 3 \\ \hline & & \end{array}$$

$$\begin{array}{rrr} \text{yds.} & \text{ft.} & \text{ins.} \\ 9 & 0 & 5 \\ 1 & 2 & 8 \\ \hline & & \end{array}$$

Sixty examples were set, and a period of five minutes was allowed for the test. Three marks were given for each correct sum, one mark

being given for the right answers to each of the following component parts: yards, feet, and inches. Sums partially correct obtained two marks or one mark according to the number of correct component answers.

SUBTRACTION OF LENGTH.

Sample of Test:—

yds.	ft.	ins.
7	2	9
3	4	7

yds.	ft.	ins.
16	0	1
7	2	9

yds.	ft.	ins.
22	2	1
7	1	4

The number of examples, time allowed, and system of marking were the same as for the "Addition of Length" test.

MULTIPLICATION OF LENGTH.

Sample of Test:—

yds.	ft.	ins.
9	2	3
5		

yds.	ft.	ins.
7	0	5
4		

yds.	ft.	ins.
8	2	4
8		

Forty examples were set. The time allowed and system of marking were the same as for the "Addition of Length" test.

DIVISION OF LENGTH.

Sample of Test:—

yds.	ft.	ins.
3	7	2
6		

yds.	ft.	ins.
7	9	0
3		

yds.	ft.	ins.
5	6	1
1		

Forty examples were set. The time allowed and system of marking were the same as for the "Addition of Length" test.

PROBLEMS.

Sample of Test:—

1. One box of apples weighs 56 lb., and another weighs 9 lb. less. What is the weight of the second box? (One step problem.)

2. There are six equal rows of pins. There are 216 pins altogether. How many pins are there in one row. (One step problem.)

3. My bat cost 4s. 6d. My brother's bat cost 4d. more than mine. How much did the two cost? (Two step problem.)

4. One box contains 48 oranges, and another box contains 44 oranges. If there are 8 bad oranges how many good ones are there? (Two step problem.)

Thirty examples¹ were set, fifteen being one step problems and fifteen being two step problems. A period of ten minutes was allowed for the test. Two marks and one mark were given for correct answers to the two step and one step problems respectively.

¹ Scales have been elaborated for measuring arithmetical ability by means of series of graded problems, vide Starch, D.: "A Scale for Measuring Ability in Arithmetic." *J. Educ. Psych.* 1916, Vol. 7, p. 213.

Central Tendencies and Measures of Dispersion.

MEANS.

The results from the two applications of each test were amalgamated together. Since varying amounts of time were allowed for the different tests according to their nature, the means, as calculated from the raw material, are not directly comparable. In order to eliminate this varying time factor, when comparing the means, these have all been reduced to the basis of a five minutes test. Hence the means given in Table II represent the average marks obtained during a five minutes performance of each test.

TABLE II.—MEANS.

Tests	9 years		8 years	
	Boys	Girls	Boys	Girls
<i>Tables—</i>				
Addition	103	94	90	88
Subtraction	124	111	112	103
Multiplication	61	65	52	56
Division	13	14	9	11
<i>Fundamental Processes—</i>				
Addition	50	47	41	40
Subtraction	54	52	43	45
Multiplication	77	75	63	61
Division	26	28	15	19
<i>Money—</i>				
Table	16	13	13	10
Addition	48	42	38	33
Subtraction	35	28	28	22
Multiplication	27	22	25	18
Division	9	8	8	8
<i>Length—</i>				
Table	16	13	13	11
Addition	93	72	75	70
Subtraction	51	41	45	32
Multiplication	23	21	20	20
Division	18	15	16	15
<i>Problems—</i>				
	6	4	5	3

For both ages, the means of the boys' results are in the majority of cases somewhat greater than the corresponding means for the girls. This is especially so in the more difficult tests involving money and length sums. Ballard¹ also found that there was a tendency, not marked but noticeable, for the boys to obtain rather better results than the girls.

STANDARD DEVIATIONS.

In addition to considering the means it is necessary to study the way in which the individual results are distributed about the means.² When this has been done not only can the mean results for various groups be compared, but also the distribution of ability within the groups. The most suitable statistical device for showing this distribution is the "Standard Deviation." In Table III the standard deviations for the various tests are given. In Table IV the Coefficients of Variation or the standard deviations expressed as percentages of the means are stated.

¹ P. B. Ballard: "Norms of Performance in the Fundamental Processes of Arithmetic." This Journal, 1914, Vol. 2, p. 400.

² cf. J. A. Green: "Normal Performances in Fundamental Arithmetical Processes." This Journal, 1916, Vol. 3, p. 319.

TABLE III.—STANDARD DEVIATIONS.

Tests	9 years		8 years	
	Boys	Girls	Boys	Girls
<i>Tables—</i>				
Addition	32.1	30.6	22.5	32.5
Subtraction	34.4	38.2	33.8	42.7
Multiplication	28.6	30.4	25.8	33.9
Division	10.7	14.1	7.4	10.8
<i>Fundamental Processes—</i>				
Addition	18.3	18.3	11.2	10.1
Subtraction	24.8	21.2	10.5	17.2
Multiplication	36.4	36.4	20.4	24.5
Division	20.7	18.9	10.2	16.3
<i>Money—</i>				
Table	9.0	5.5	7.7	7.1
Addition	25.0	21.2	26.4	22.1
Subtraction	13.9	12.7	7.6	8.9
Multiplication	14.4	8.7	6.0	10.2
Division	6.8	4.5	4.4	3.9
<i>Length—</i>				
Table	12.0	9.9	6.0	7.9
Addition	31.0	31.7	17.6	25.6
Subtraction	21.1	16.8	9.6	11.1
Multiplication	12.6	11.8	9.4	12.5
Division	6.3	5.5	6.2	8.9
<i>Problems</i>	3.1	2.4	2.0	2.6

TABLE IV.—COEFFICIENTS OF VARIATION.

Tests	9 years		8 years	
	Boys	Girls	Boys	Girls
<i>Tables—</i>				
Addition	31.2	32.6	25.0	36.9
Subtraction	27.7	34.4	30.2	41.5
Multiplication	46.9	46.8	49.6	60.5
Division	82.3	100.7	82.2	98.2
<i>Fundamental Processes—</i>				
Addition	36.6	38.9	27.3	25.2
Subtraction	45.9	40.8	24.4	38.2
Multiplication	47.3	48.5	32.4	40.2
Division	79.6	67.5	68.0	85.8
<i>Money—</i>				
Table	56.2	42.3	59.2	71.0
Addition	52.1	50.5	69.5	67.0
Subtraction	39.7	45.4	27.1	40.5
Multiplication	53.3	39.5	24.0	56.7
Division	75.6	56.2	55.0	48.7
<i>Length—</i>				
Table	75.0	76.2	46.2	71.8
Addition	33.3	44.0	23.5	36.6
Subtraction	41.4	41.0	21.3	34.7
Multiplication	54.8	56.2	47.0	62.5
Division	35.0	36.7	38.7	59.3
<i>Problems</i>	51.7	60.0	40.0	86.7
<i>Average</i>	50.8	50.4	41.6	55.9

The standard deviations are all large¹ and when expressed as percentages of the means, with nine exceptions, exceed 30 per cent. The average value of all the coefficients of variation for the four groups is 49·7. The average coefficients of variation are approximately equal (boys 50·8, and girls 50·4) for the two sexes for the nine year old children; while in the case of the eight year old children the girls are more variable. The average coefficients of variation for the eight year old boys is 41·6, and for the eight year old girls is 55·9.

Correlations.

For correlation purposes the boys' results were taken as a whole, and in a similar manner those of the girls. The correlations were then worked out for the Boys' Group (fifty-nine boys) and for the Girls' Group (seventy-one girls).

All the correlation coefficients were worked out by the standard Bravais-Pearson method, in which the correlation coefficient is given by the following formula:—

$$r = \frac{\sum x y}{n \sigma_1 \sigma_2}$$

where r = the correlation coefficient between the results for any two tests.

x = the deviation of an individual result in the first series from the mean of that series.

y = the deviation of the corresponding individual result in the second series from the mean of that series.

$\sum x y$ = the sum of the products of all such deviations.

n = the number of cases.

σ_1 = the standard deviation for the first series of results.

σ_2 = the standard deviation for the second series of results.

Reliability Coefficients.

Each test was repeated under similar conditions on two separate occasions. The reliability coefficients were worked out for the two series of results obtained for each test. These reliability coefficients are shown diagonally in Tables V and VI. The reliabilities of the boys' and girls' results are practically the same, viz., average reliability coefficient for the Boys' Group = ·78, and for the Girls' Group = ·79.

Correlation.

In Tables V and VI are given the intercorrelations of the tests. The boys' results on the whole tend to give higher correlations than do those of the girls. The average of all the coefficients for the boys is ·66, and for the girls ·59. At the bottom of the tables is given the average of the coefficients in each column. There are eight average coefficients of value ·70 and upwards in the Boys' Group, and only one average coefficient of such magnitude in the Girls' Group. On the other hand there are four coefficients of value ·60 and downwards in the Boys' Group, and nine such coefficients in the Girls' Group.

¹ Professor Green also found that the standard deviations of children when tested with somewhat similar tests were large. He states: "Within the tables themselves perhaps the most striking feature is the high deviation, considered, of course, in relation to the performance of each class as a whole."

J. A. Green, this Journal, 1916, Vol. 3, p. 321.

Professor Green also states that practice has very little tendency to lessen the magnitudes of the deviations.

J. A. Green, this Journal, 1917, Vol. 4, p. 97.

TABLE VI.—GIRLS' GROUP.¹

	Addition Table	Subtraction Table	Multiplication Table	Division Table	Addition Sums	Subtraction Sums	Multiplication Sums	Division Sums	Money Table	Addition Money	Subtraction Money	Multiplication Money	Division Money	Length Table	Addition Length	Subtraction Length	Multiplication Length	Division Length	Problems
Addition Table	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Subtraction Table	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Multiplication Table	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Division Table	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Addition Sums	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Subtraction Sums	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Multiplication Sums	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Division Sums	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Money Table	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Addition Money	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Subtraction Money	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Multiplication Money	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Division Money	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Length Table	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Addition Length	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Subtraction Length	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Multiplication Length	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Division Length	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Problems	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Average	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...

¹ The Reliability Coefficients were not taken into Account when calculating the average coefficients.

The probable errors of the above coefficients are as follows:—

P.E. = .00 for values of r between 1 and .97 inclusive.

P.E. = .01 " " .96 and .91

P.E. = .02 " " .90 and .83

P.E. = .03 " " .82 and .76

P.E. = .04 " " .75 and .67

P.E. = .05 for values of r between .66 and .56 inclusive.

P.E. = .06 " " .55 and .44

P.E. = .07 " " .43 and .26

P.E. = .08 " " .25 and .00

When Tables V and VI are compared it is noticeable that the Boys' Table contains a much greater proportion of high coefficients and a much smaller proportion of low coefficients than the Girls' Table, e.g., there are 22 coefficients¹ of a greater value than .85 in the Boys' Table and only 8 such coefficients in the Girls' Table, while there are 20 coefficients of a value less than .40 in the Boys' Table and 44 such coefficients in the Girls' Table.

The high and low coefficients are not regularly distributed throughout the tables, but are more thickly clustered together in some parts than in others. In both Boys' and Girls' Groups the sections of the tables involving correlations only between the Tables, Simple Sums and Money Tests have a much larger proportion of the large coefficients and a much smaller proportion of the low coefficients than the sections of the tables dealing with the correlations of the Length Tests and Problems with each other and the remaining tests. This is shown in Table VII.

TABLE¹ VII.

	Total Coefficients			Coefficients involving only Table, Sum and Money Tests			Coefficients involving Length and Problem Tests		
	No. of Coefficients	No. of Coefficients above .85	No. of Coefficients below .40	No. of Coefficients	No. of Coefficients above .85	No. of Coefficients below .40	No. of Coefficients	No. of Coefficients above .85	No. of Coefficients below .40
Boys	342	22	20	156	16	4	186	6	16
Girls	342	8	44	156	6	14	186	2	30

In Table VIII the average correlations of each test with every other test are arranged in order of magnitude. The tests, Subtraction Sums, Subtraction of Length, Addition Table, Length Table, Multiplication Table, Multiplication of Length, Money Table, Addition of Money, Problems, and Division of Length occupy exactly or very nearly the same rank order for the two groups.

The rank orders of the tests, Division of Money, Division Table, Addition of Length, Addition Sums, and Subtraction Table are widely different in the two groups. The tests, Problems and Division of Length on the average correlate poorly with the other tests in both groups.

The results from the component members of each of the following groups of tests were amalgamated together:—

1. Simple Table Tests (Addition Table, Subtraction Table, Multiplication Table, Division Table).
2. Simple Sum Tests (Addition Sums, Subtraction Sums, Multiplication Sums, Division Sums).
3. Money Tests (Addition of Money, Subtraction of Money, Multiplication of Money, Division of Money).
4. Length Tests (Addition of Length, Subtraction of Length, Multiplication of Length, Division of Length).

¹ Reliability Coefficients not included.

TABLE VIII.

BOYS' GROUP			GIRLS' GROUP			COMBINED GROUP		
Rank Order	Tests	Average Coefficients	Average Coefficients	Tests	Rank Order	Tests	Average Coefficients	Rank Order
2	Subtraction Sums	.73	.70	Addition Length	1	Subtraction Sums	.71	1
	Division Money	.73	.68	Subtraction Sums	2	Subtraction Length	.69	2-5
	Subtraction Length	.73	.67	Multiplication Money	3	Addition Length	.69	
4	Multiplication Sums	.72	.65	Subtraction Length	4	Multiplication Sums	.68	5
	Addition Table ..	.71	.64	Addition Table ..	5-5	Multiplication Money	.68	
	Division Table ..	.71	.64	Addition Sums ..	7	Addition Table ..	.68	7
	Division Sums ...	.71	.63	Multiplication Sums		Division Sums ..	.66	8-5
8	Subtraction Money	.70	.61	Subtraction Table	9	Subtraction Money	.65	
	Multiplication Money	.69	.61	Division Sums ..		Length Table ...	.65	
9	Length Table ...	.68	.61	Length Table ...	11-5	Multiplication Table	.63	11
	Addition Length	.68	.60	Multiplication Table		Division Money	.63	
12	Multiplication Table	.66	.60	Subtraction Money	13	Addition Sums ...	.62	13
13	Multiplication Length...	.65	.58	Multiplication Length...	14	Multiplication Length...	.60	14
14	Addition Sums ...	.62	.53	Division Money	15-5	Subtraction Table	.58	15
15	Money Table ...	.61	.52	Money Table ...	17	Division Table ...	.57	16
16	Addition Money	.60	.52	Addition Money	18	Money Table ...	.56	17
17	Subtraction Table	.59	.50	Problems	19	Addition Money	.52	18
18	Problems	.54	.47	Division Length		Problems	.45	19
19	Division Length	.43	.45	Division Table ..		Division Length		
	Average Coefficient	.66	.59	Average Coefficient		Average Coefficient	.63	

Thus four amalgamated series of results were obtained—one for each of the above groups of tests. These amalgamated series were correlated with each other and also with the results of the Problem Test. The resulting correlation coefficients are shown in Tables IX and X.

TABLE IX.—BOYS' GROUP.

	Tables	Sums	Money Sums	Length Sums	Problems
Tables	.77	.92	.76	.29	.51
Sums	.92	.82	.81	.37	.53
Money Sums ...	.76	.81	.80	.54	.72
Length Sums.....	.29	.37	.54	.77	.27
Problems	.51	.53	.72	.27	.71
Average	.62	.66	.71	.37	.51

TABLE X.—GIRLS' GROUP.

	Tables	Sums	Money Sums	Length Sums	Problems
Tables	.79	.91	.74	.31	.53
Sums	.91	.79	.78	.23	.42
Money Sums ...	.74	.78	.77	.63	.71
Length Sums ...	.31	.23	.63	.79	.18
Problems	.53	.42	.71	.18	.78
Average	.62	.59	.72	.34	.46

The coefficients for the Girls' Group are on the average (av. coeff. = .54) lower than those for the Boys' Group (av. coeff. = .57). The Length Tests show relatively small inter-correlations with the other tests. This may be due to the fact that the children tested had less experience in their school lessons in working sums involving a knowledge of length table than in working sums involving the simple tables and the money tables. High intercorrelations are found in both groups between the Table, Sums, and Money Tests.

A knowledge of the Simple Tables enters into each of the other groups of tests. It is of interest to investigate the intercorrelations between these groups of tests, irrespective of their common relation to the Table Tests. This can be accomplished by means of the method of partial correlation¹.

The formula required for ascertaining the partial correlation between two abilities for a constant value of a third is:—

$$r_{12.3} = \frac{r_{12} - r_{13} r_{23}}{\sqrt{1 - r_{13}^2} \sqrt{1 - r_{23}^2}}$$

where $r_{12.3}$ = the correlation between abilities 1 and 2 for a constant value of ability 3.

r_{12} = the correlation between abilities 1 and 2.

r_{13} = the correlation between abilities 1 and 3.

r_{23} = the correlation between abilities 2 and 3.

¹ A detailed account of this statistical method is given in "An Introduction to the Theory of Statistics," by Udney Yule, published by C. Griffin & Co.; also in "The Essentials of Mental Measurement," by W. Brown; published by the Cambridge University Press.

The partial correlations resulting from the application of the above method in the case of "Tables Test constant" are shown in Tables XI and XII.

TABLE XI.—BOYS' GROUP.

Tests	Partial Correlation Coefficients
Sums and Money Sums	= .44
Sums and Length Sums	= .28
Sums and Problems	= .18
Money Sums and Length Sums	= .51
Money Sums and Problems	= .59
Length Sums and Problems	= .15

TABLE XII.—GIRLS' GROUP.

Tests	Partial Correlation Coefficients
Sums and Money Sums	= .38
Sums and Length Sums	= -.13
Sums and Problems	= -.18
Money Sums and Length Sums	= .63
Money Sums and Problems	= .56
Length Sums and Problems	= .02

There is a considerable positive partial correlation between Sums and Money Sums, Money Sums and Length Sums, Money Sums and Problems for each of the groups. There is a small positive partial correlation for each group between the tests Length Sums and Problems, while in the case of Sums and Length Sums, Sums and Problems there is a small positive partial correlation for the Boys' Group and a small negative partial correlation for the Girls' Group.

In addition to a knowledge of the Tables, ability to work Sums in Addition, Subtraction, Multiplication and Division is required before Money Sums, Length Sums and Problems can be worked. Hence the correlations between ability to work Money Sums, Length Sums and Problems are affected by the correlation of these tests with both Table and Simple Sum Tests. The intercorrelations between Money Sum, Length Sum and Problem Tests for a constant value of the Table and Simple Sum Tests can be ascertained by the method of partial correlation for four variables. The necessary formula is:—

$$r_{12 \cdot 34} = \frac{r_{12}(1 - r_{34}^2) - r_{13}(r_{23} - r_{24}r_{34}) - r_{14}(r_{24} - r_{23}r_{34})}{\sqrt{1 - r_{13}^2 - r_{14}^2 - r_{34}^2 + 2r_{13}r_{14}r_{34}} \sqrt{1 - r_{23}^2 - r_{24}^2 - r_{34}^2 + 2r_{23}r_{24}r_{34}}}$$

where $r_{12 \cdot 34}$ = the correlation between abilities 1 and 2 for constant values of abilities 3 and 4.

r_{12} = the correlation between abilities 1 and 2.

r_{13} = the correlation between abilities 1 and 3.

r_{14} = the correlation between abilities 1 and 4.

r_{23} = the correlation between abilities 2 and 3.

r_{34} = the correlation between abilities 3 and 4.

The partial correlations resulting from the above method in the case of both "Tables and Sums Constant" are shown in Tables XIII and XIV.

TABLE XIII.—BOYS' GROUP.

Tests	Partial Correlation Coefficients
Money and Length Sums	= .46
Money Sums and Problems	= .58
Length Sums and Problems	= .10

TABLE XIV.—GIRLS' GROUP.

Tests	Partial Correlation Coefficients
Money and Length Sums	= .74
Money Sums and Problems	= .69
Length Sums and Problems	= .00

The partial correlations, when Tables and Sums are both constant, are high and positive in the case of (1) Money and Length Sums, (2) Money Sums and Problems for the Girls' Group. They are also positive but not so high for the same tests for the Boys' Group. In the case of Length Sums and Problems the partial correlation coefficient is small for the Boys' Group and zero for the Girls' Group.

Conclusions.

Summarizing the conclusions drawn in the preceding pages, it appears that

1. The degree of ability shown by the boys is somewhat greater than that shown by the girls.
2. The coefficients of variation are large for both sexes.
3. The intercorrelations between the individual tests are all positive and in most cases fairly high. These intercorrelations are generally higher for the Boys' Group than for the Girls' Group.
4. As a general rule ability in one department of elementary numerical work is correlated closely with ability in other departments.

NORMS OF PERFORMANCE IN SIMPLE ORAL ARITHMETIC.

By P. B. BALLARD.

MANY a teacher has felt the need of some simple means of estimating, with a reasonable degree of precision, the arithmetical attainments of young children. The tests that have hitherto been published are intended for older children, for children who are able to work sums on paper. They cannot measure the beginnings, and are consequently of no use in dealing with children in infants' schools.

To meet this need, I have used the following tests in addition and subtraction :—

ORAL ARITHMETIC TESTS.

One Minute Addition Test.			One Minute Subtraction Test.		
(1) 1 + 2	(16) 6 + 3		(1) 2 - 1	(16) 8 - 5	
(2) 4 + 1	(17) 2 + 6		(2) 3 - 2	(17) 10 - 4	
(3) 2 + 2	(18) 5 + 5		(3) 5 - 1	(18) 9 - 5	
(4) 2 + 4	(19) 7 + 2		(4) 6 - 2	(19) 10 - 3	
(5) 3 + 2	(20) 4 + 6		(5) 5 - 3	(20) 9 - 4	
(6) 4 + 3	(21) 7 + 5		(6) 2 - 2	(21) 11 - 2	
(7) 2 + 5	(22) 8 + 3		(7) 7 - 2	(22) 10 - 6	
(8) 5 + 4	(23) 4 + 9		(8) 6 - 4	(23) 12 - 3	
(9) 3 + 5	(24) 6 + 8		(9) 7 - 3	(24) 11 - 6	
(10) 8 + 2	(25) 7 + 6		(10) 6 - 3	(25) 12 - 5	
(11) 4 + 4	(26) 9 + 8		(11) 8 - 2	(26) 13 - 4	
(12) 5 + 2	(27) 9 + 6		(12) 7 - 5	(27) 15 - 9	
(13) 6 + 4	(28) 8 + 7		(13) 8 - 3	(28) 14 - 6	
(14) 1 + 8	(29) 5 + 9		(14) 7 - 4	(29) 17 - 8	
(15) 3 + 7	(30) 7 + 9		(15) 9 - 3	(30) 16 - 7	

Each child is tested individually and in isolation. He is asked the question, "One and two?" and as soon as he answers it correctly he is asked the next, "Four and one?" and so on. He is not allowed to proceed until he has given the right answer. The number of questions correctly answered in one minute gives the score.

The same method is adopted for administering the subtraction test.

A little preliminary questioning is desirable to put a child at his ease, and to see that he knows exactly what is required of him.

The result of a test which I had set in a large number of schools some years ago enabled me to select 15 schools where the arithmetical attainments showed no abnormal peculiarities. There was every reason to believe them to be representative of the average London school. The total number of boys was 3,735, and of girls 3,654.

AVERAGES ACTUALLY OBTAINED.

Age.	ADDITION.			SUBTRACTION.	
	Boys.	Girls.		Boys.	Girls.
5½-6	4.3	4.6	.....	3.3	3.6
6-6½	7.6	7.4	.....	5.9	5.3
6½-7	10.2	9.8	.....	7.3	6.9
7-7½	11.5	12.8	.....	8.3	8.7
7½-8	13.6	14.2	.....	10.3	10.3
8-8½	15.3	16.4	.....	11.7	12.0
8½-9	17.9	18.3	.....	14.6	14.1
9-9½	18.9	19.9	.....	15.2	15.8
9½-10	20.6	21.1	.....	17.7	17.1

PROBABLE NORMS.

Age.	ADDITION.			SUBTRACTION.
	Boys.	Girls.		Boys & Girls.
5½-6	4½	4½	.....	3½
6-6½	7½	7½	.....	5½
6½-7	9½	10	.....	7
7-7½	11½	12	.....	8½
7½-8	13½	14	.....	10½
8-8½	15½	16	.....	12½
8½-9	17½	18	.....	14
9-9½	19	20	.....	15½
9½-10	20½	21	.....	17½

The mean variation seems to be nearly the same for each age group and for each process, and amounts to between 3 and 4.

The girls were able to add appreciably better than the boys, but in subtraction there was virtually no difference between them.

With the very youngest children the score was low, not merely because they were slow in computing, but because their knowledge was limited to the first few numbers in the scale. They could not have answered the whole of the questions even if they had been given unlimited time. When older children scored few marks, it was mainly because they added by units. This points to the necessity for the early memorization of the addition table. The answering in one or two schools, however, tends to convince me that there is a danger of premature memorizing. $2+5=10$ was a type of answer by no means infrequent. This confusion between the addition and multiplication tables would scarcely be possible for a child who was familiar with the make-up of the first ten natural numbers.

In subtraction, the question that seemed to present the greatest difficulty was the sixth ($2-2$).

As the oral examination of a large number of pupils took a considerable time, it was thought that a saving might be effected by setting the same test in written form. It was found, however, on actual trial that even with the older children the written test was a less delicate measure of arithmetical ability. The questions were typed and set to a number of children between 9 and 10 years of age in the form given above, with a blank space for the answer. The children between $9\frac{1}{2}$ and 10 did 20 per cent worse than at the oral examination, and the children between 9 and $9\frac{1}{2}$ did 30 per cent worse. The difference would, it is reasonable to assume, be increasingly great as we went down the scale of age. It was, therefore, considered wiser, in dealing with such rudimentary work, to adhere to the oral form throughout.

Since the investigation described above, which was, in fact, made before the war, these tests have been widely used by myself and others, and have produced results which confirm the accuracy of the norms given. Among other things, I have endeavoured to find the difference between the achievements in good and poor schools,* the terms good and poor being used in a social sense only. Instead of comparing two schools, the best and the worst—a plan accompanied by obvious risk—a group of very good schools was compared with a group of very poor schools. The difference proved to be greater than I had anticipated. In both addition and subtraction the good schools were at least one year in advance of the age-norms, and the poor schools at least one year behind. There was, in fact, a difference of more than two years between the achievements of the two social classes.

I also found distinct evidence in support of what seems to be a general rule: the higher the social status the more favourably do the girls compare with the boys. In good neighbourhoods the girls compute a little better than the boys, in poor neighbourhoods a little worse.

I do not claim for these simple tests any high pedagogic value. I give them to the readers of this Journal in the hope that they will be found practically useful in the limited sphere for which they are intended.

* I am deeply indebted to Miss L. Brackenbury, M.A., for her valuable help in this investigation.

ANALYSIS OF THE SPELLING PROCESS.*

By SUSIE S. BRIERLEY.

I. Definition of Problem.

"Spelling" means two things. First, the objective fact that a given word consists of given letters in a standard order; and second, the psychical processes involved in learning the component letters of a word-whole, and reproducing these in response to a stimulus. The stimulus to reproduction may be the pronunciation of the word by another person, or (more commonly) context in thought, whether of meaning or imagery. The reaction, whether centrally or peripherally excited, is of the nature of a habit, and automatic functioning is the practical desideratum.

Objectively, the word-complex has three elements—the written symbol, involving on the subjective side visual and writing-motor processes; the spoken symbol, involving auditory and speech-motor processes; and the meaning. The connexion between the visual form and the movements of hand and arm which produce it is mechanically necessitated and intrinsic. No other movements (within certain limits) could produce that particular form in any given case. The connexion between the sound-whole and the motor processes which give rise to it is similarly determined. The association between the written and spoken symbols, however, is arbitrary and extrinsic, at least as regards the alphabet, in every developed language. In the case of a non-phonetic language such as English, this connexion is almost equally arbitrary for the word-wholes.

In proportion as a language is non-phonetic, the relation of the visual whole of the word to its constituent parts, the letters, differs from the relation of the sound-whole to its constituent parts, the sound-values of the letters. The visual whole contains and gives all its parts unchanged. The same glance that yields the visual whole we call *cat* gives also the visual units *c*, *a*, *t*. But the sound-whole is almost a new thing, very different from the sum of its parts, if by "parts" is meant the sound values of the separate letters. Not merely are the letter-values not represented, but frequently the sound-values of the letters are unrepresented or completely altered in the word-sound. (Note, for instance, *gh* in *light*, or *a* as it appears in *cat*, *date*, *staff*, *all*, *dare*, *dear*.) Strictly speaking, the parts of the word-sound are not the letters at all, but phonetic units, often corresponding to groups of several visual units. There is, in fact, no constant plan of direct and elementary correspondences between the visual form, the letter-names, and the sound-value of a word in the English language. This arbitrariness of relation necessitates a more or less separate memory and habit of response for each individual word.

The elements of sensation and imagery in the spelling-complex are of four kinds—visual, auditory, writing-motor, and speech-motor. The purpose of this investigation was to determine the mode of functioning and the relative importance of these factors.

* This investigation was carried out in the Cambridge Psychological Laboratory, under the direction of Dr. C. S. Myers. I am deeply grateful to Dr. Myers for his unfailing kindness and most valuable advice and criticism. I have also to thank my subjects, who so ungrudgingly gave me their time and attention.

II. Previous Work.

This may be classified according to whether it deals with the psychical processes or with the most satisfactory teaching methods. Many workers cover both fields directly or indirectly. The second type of research affects the present problem only in so far as it throws light upon the first.

A further division of previous work may be made on the basis of technique as to whether it relies in the main on the quantitative results of varied modes of presentation and recall, in the case of a large number of subjects, using numerical relations to indicate the presence and importance of possible factors; or on detailed introspective analysis by individual observers.

A valuable summary of work and conclusions (to 1912) will be found in Rusk, "Introduction to Experimental Education," pp. 267-276. Sandiford, "Mental and Physical Life of School Children," p. 337, gives a bibliography.

The most important paper relevant to the present investigation is that of E. A. Abbott, "Analysis of Memory Consciousness in Orthography," *Psychological Review*, Mon. Supp. XI. The method of the present writer was similar to that of Abbott, in so far as it relied on qualitative analysis. Abbott used quantitative results for confirmation only. The main criticism to be made of her work is that she investigated too small a number of observers. Four subjects were used, two for the comparison of visual and auditory presentation, and two others for the study of the influence of vocalization. The number of known possible imaginal types was by no means exhausted, and the great possibilities of individual differences left out of account very much weaken the generalizations. Thus, Abbott speaks of the "typical mode of recall" as being through visual imagery; it would, however, seem that there is no "typical" mode of recall, although a visual form probably occurs most frequently, as visualizing individuals are in the majority. Abbott further states that "no auditory imagery of heard letters ever played a part in recall," implying that it never does in any case. This is again contradicted by the present work, and probably arose from the fact that the types of memory inquired into were so limited. Further, Abbott assumed the universal use of the machinery of imagery in learning and recall, and ignored the "problem of the "imageless" speller.

III. Method.

Preliminary investigations were made into the concrete and verbal imagery of each observer. The tests used were a questionnaire, Secor's method, and Binet's letter-squares; the spelling of long words with careful introspection, and two reversal tests, (a) in which E. spells a word aloud, giving the letters in reverse order; and (b) in which O. himself spells a word aloud, reversing the order of the letters.

The spelling efficiency of the subjects was also examined. A rough standardization was obtained by a dictation test composed of sensible words affording some difficulty to poor spellers, e.g., *idiosyncrasy*, *unparalleled*, *gauge*, *symmetry*, *vacillation*. The test was 120 words in length. For the purposes of the work, a bad speller was considered to be one who had ten or more errors.

In the spelling experiments proper, the method employed was that of direct qualitative analysis in detailed introspection by individual observers. A quantitative method judges product rather than process. It was suspected, moreover, and the progress of the work amply confirmed this, that special conditions obtain in this particular problem which render quantitative treatment impracticable. The various factors, or at least certain of these, cannot be properly isolated. Numerical relations which reflect the relative importance of the factors thus cannot be adequately determined. The discussion below of the difficulty experienced in attempting to rule out vocalization, for example, makes this clear.

The experiments fall into two groups, A and B.

A GROUP.

These were planned to reveal the relative importance and mode of functioning of the visual, auditory, and articulatory elements. The material consisted of six series of seven two-syllable words. (The monosyllable is unsuitable for a study of spelling, for it presents too few possibilities in variety and difficulty of letter combinations.) The first word in each series was sensible, the following six specially devised non-sensible words. Two series were learnt at each sitting, and reproduced after an interval of four days.

Three modes of presentation were employed :—

- (1) *Visual*. The words were visually presented at a regular rate by means of Jastrow's Memory Apparatus. Strict instructions were given to the observer to learn merely from the visual form (as a picture), repressing any tendency to internal articulation as far as possible.
- (2) *Auditory*. The words were pronounced and then spelt at a uniform rate by the experimenter, with instructions to the subject to rule out visualization.
- (3) *Combined*. The observer saw the words, and himself pronounced and spelled them at a uniform rate, thus explicitly introducing visual, auditory, and articulatory elements.

In order to prevent, in reproduction, any hint as to the spelling being given by pronunciation of the word by the experimenter, an arbitrary "meaning" was attached to each otherwise meaningless word, by means of a small drawing designed for the purpose. This was presented visually at the same time as the word to which it belonged, whatever the method by which the latter was given. In reproduction, the "meaning" was exhibited as a stimulus to the recall of a word. If at the end of one minute the observer failed to recall the required word, it was then pronounced by E. and spelt by O.

B GROUP.

These experiments were designed to study the part played by the writing-motor elements in spelling. The material was similar to that described for the A experiments. The modes of learning were three :—

- (1) *Auditory*. E. pronounced and spelled the words aloud at a steady rate, O. merely listening, and left free as to play of imagery.

- (2) *Auditory and Motor.* E. pronounced and spelled similarly, O. writing the word to E.'s dictation, with closed eyes, so that the writing was unseen, and was thrown on its own intrinsic value as mere movement.
- (3) *Auditory, Motor, and Visual.* E. pronounced and spelled each word, while O. wrote in the usual way with visual perception of the writing.

The reproduction in this Group of experiments was in response to E.'s pronunciation of the word, half the words being written and half spelled aloud.

A report of introspection was taken after each series in learning, and after each word in recall, in all experiments.

OBSERVERS.

Twenty-nine subjects were investigated, 15 in the A Group of experiments, and 14 in B Group. All were educated adults of University attainments, and four were trained psychologists (Observers 3, 19, 28 and 29).

IV. Analysis of Results.

1. CLASSIFICATION INTO IMAGINAL TYPES.

A considerable range of individual differences in the use of imagery was found in the 29 adults examined. These differences have reference to two main characteristics—(a) dependence upon imagery; and (b) predominant type of imagery.

A. DEPENDENCE UPON IMAGERY.

Two antithetic groups are easily apparent—those (Observers 2 and 8, both women) whose normal method appeared to be that of complete reliance upon imagery of an unusually vivid and concrete nature; and those (Observers 3, 7, 14, 28 and 29, two women and three men) whose imagery was of the most fragmentary and negligible character, whose knowledge of spelling was independent of the existence of imagery, and who may be described fairly as “imageless” spellers.

OBSERVERS RELIANT UPON IMAGERY.

In the preliminary tests for concrete imagery the reports of O2 revealed a wealth of vivid images. In a verbal test, spelling *assassination*, she said, “I see it in a newspaper, the Foreign News part of the *Times*, very large print, heading paragraph.” *Pulmonary*, “Saw it in a medical paper, a word in a paragraph.” In reversing *mercenary*, she saw the word in E's writing, and read off backwards. So with *characterization*. In recognizing a word E reversed, she worked “by sight.” In learning the spelling series of A Group by the auditory method, she “had to visualize in order to get grip of letters at all, could listen to sound without realizing what letters were, to do this must visualize.” Learning by the combined method, after the auditory series, she “heard first letters of word always in E's voice, as if E saying and self copying.” Later she “heard own voice for first time, so strange.” In the interval of four days between learning and reproduction, O2 was haunted by E's voice “most distinctly” pronouncing and spelling words, even those learnt visually. This was accompanied by the “sight” of the words, and of E standing beside O holding a paper. O2 reported visualization in every instance in recall, the spelling being “read off.” Her way of saying that she cannot spell is that she “cannot see it.” She further stated that visual images are always used

in her ordinary spelling. She "found difficulty in getting the *personality* of these nonsense syllables; all words have an individual character, but it is difficult to get these—the black ink puts me off."

O8 had very brilliant concrete visual imagery, and auditory was also good. "Letters and figures are coloured: each letter has its own colour, and words have characteristic colour-combinations. Numbers are always seen as words, when thought of, and coloured; e.g., nine is green, seven yellow, eight bright pink, ten a whitey-grey; eighty-nine, with pink and green dovetailing. Eight is always associated with a pink lampshade at home—I do not know why—I always see the lamp." O8 further reported that in learning she "gets the sight of word into my brain." She "*never* thinks of a letter without seeing it—cannot do so."

"IMAGELESS" SPELLERS.

In marked contrast to Observers 2 and 8 are the five spellers in the "imageless" group, Observers 3, 7, 14, 28 and 29. For these, the learning process appears to be one of acquiring *knowledge of the facts* of spelling, as distinct from the impressing of images. The term "imageless" denotes lack of use rather than of capacity. In recall there was occasionally reported some slight visual or auditory imagery following on the revived knowledge of the required spelling, but the knowledge was definitely prior in time. The imagery in such cases was probably detected only because the observer's attitude was introspective and analytical.

O3 reported slight auditory images in the preliminary tests for concrete imagery. The verbal tests showed him to have rare, very slight, and vague imagery; it was functionally negligible. He had some difficulty in reversing words in the reversal tests. In learning the spelling series by the visual method, O3 reported "the recognition of letters appears to involve pronunciation; at first this is auditory with no motor-element, as if it were someone else's pronunciation; later, a motor element, or rather tendency to actual movement, comes in." Later still, "more auditory, but of a curious ghost-like kind, no body in it, as a whisper compared with a voice; the motor element seems a preparation for saying rather than actual saying; perhaps there is faint actual sensation." On another occasion O3 said "I found I could apprehend these words, a span of apprehension, not of vision. I used mnemonics continually, remembering *facts* all the time, e.g., that there was *tt*. This was not imagery. Not seeing nor hearing." In learning by the auditory method O3 reported slight visual images of odd letters here and there, at first, but not later; and a trace of auditory image in anticipating E's voice. Later, "no trace of any imagery, but I spoke letters and words with E, when familiar; a motor intent; I incline to think there is something which is not imagery and not actual movement, perhaps knowledge that I could image or say. Spelling noted as fact." In another series, "at first had visual image of letters, two or three at a time, as they were said—only the first few times; never of the word. Used mnemonics. Facts of spelling noted *as facts*, e.g., *ll* or *cc*. I do not think I repeated these. Not in imagery. In a sense, I tried to see what each syllable meant, not ordinary meaning, but function of such and such a group of letters to give such and such a sound, what those letters were there for." At another time, "a trace of visual imagery, very, very vague, and a trace of auditory in anticipating E. What there was, confined to single letters. Not certain about any, but probable." In recall, O3 reported always "no imagery," or "very slight, after knowledge." Spelling *Suubphroff*, vague idea of two vowels, either *oo* or *uu*, later, vague visualization of *uu*, but idea first. *Gogmolph*, "sound known as fact." *Throidkurr*, "no imagery, mnemonic *thyroid*." *Rowbptalm*, "mnemonic *ptarmigan*, with sheer recollection that it was spelt differently. No image." *Geightwief*, possibly slight visualization of *eight*, so indefinite that hardly an image. *Wrighteague*, "fact, no imagery." *Mnamnsett*, "mahmsett—oh, no!

mn comes in, double *mn*. Very clearly knowledge that it was this before formulated. No images."

Observer 7 used no visual imagery in the preliminary tests, although he "can if try, has to try." He had occasional auditory images, but much more usually reported "mere knowledge of facts." In learning, O7 reported he had no imagery unless he "made an effort" to see the letters, and then could not do it well." He used sight and sound in the combined method "to get hold of words and letters mentally, a mental grip, as facts." He "did not think of visual form when the idea was grasped; tried to get idea of whole word from visual appearance." He "took mental notes of facts." This observer made very little use of mnemonics. His almost invariable report in reproduction is "knew as fact no imagery," "just knew it." Once or twice he "heard E spelling word, but knowledge quite independent of this," or "perhaps a slight auditory image of *g a u* in *gaugreine*, but knew spelling as soon as heard the word." In *Chuysare* "no images—simply know it is spelt so."

O14 appeared to be very deficient in every kind of imagery. She reported herself as having practically no concrete imagery, "occasionally a little visual of a limited nature, if I will it," but no auditory. She can neither image nor recognize tunes. In giving a list of objects which make a noise, she "made a deliberate search for them by thinking of things in daily life, then considering whether they made sounds or not—no imagery." So with a list of red objects. She had much difficulty in the word-reversing tests, and had to repeat the words aloud, to know her whereabouts. She found difficulty in saying her own name "mentally" without actual movement, she "would not do it naturally, and only with great effort." She "thinks best aloud." Owing to unfortunate circumstances, only a trial spelling series was taken with this observer. The results were very positive. Her method in learning was "to acquire" facts about the spelling mainly in the way of mnemonics or assimilation to a known class of word. She thought she "divided word into syllables as would a number into factors; it feels the same; through sense, not sound." No imagery of any kind was used in recall.

O28 reported that he had no verbal imagery, and only very vague concrete. A diagram or photograph might be visualized occasionally, if looked for very carefully; it was extraordinarily vague. He had imagery only in hypnagogic states, as when falling asleep. (E.g., after learning one spelling series the thought of the words came to him on waking one morning. He thought of a word ending in *ff*, then *reuff*, then a distinct visual image of *reuff* appeared.)

At O's request, E pronounced a number of words slowly, while O minutely analysed in introspection. He reported that he could not find any imagery; if anything there was extraordinarily blurred visualization, but from it he could not possibly tell the letters if he did not otherwise know them. "There is something that gives a concrete character, whether it is auditory or visual. Might be visual, or possibly an auditory after-image." In learning by the first method in Group B, O28 reported "no imagery." He repeated words and letters after E, "actual movement possibly with vague sound-image attached." Later he thought that when he looked very carefully there was vague visualization, "but this obstructed thinking." "No aid from visualization." He "had to look so much that he could not get on with the learning. If there, it was extraordinarily vague." He was "perfectly certain that if he did not know of imagery on psychological grounds it would not occur to him as possibly present." His learning process was "one of getting facts and associations"; "will remember differences and peculiarities." E.g., *mh* in a word reminds him of several languages. "*Pnedrheuff* belongs to *pneumatic* class of words." The recall was always given as a "matter of fact," e.g., *tredemawr*, "knew *trede* because not *treed*; *mawr* because of *Penmaen-mawr*." Imagery was never used, although it possibly occurred every now and then "in an extremely vague way," and with no attention paid to it.

O29 reported no concrete or verbal imagery of any importance or definiteness. She remembered experiencing images before she was fifteen years of age, but they

had then been lost. She had little trouble with the word-reversal tests. Her method in learning the spelling series was to "try to get the principle on which the words were built up." She also noted the "balance" of the letters, e.g., *gyrecept* as 4 and 4; *rexemn* as 3 and 3. This feeling for rhythm even cut across obvious syllables; as when *guinewym* was grouped as (*guin*) (*ewym*), 4 and 4, *e* being mute in E's pronunciation. Analogies were noted and associations built up, e.g., the sound of *rxwmn* and *rucksack* with associations of "cold and Switzerland"; *ptyllorge* and *ptyalin*; *droomous* and *dromedary*, "but different from *dromedary*, *dromedary* and mouse as lion and mouse." She "always seemed to have to get a standard, and note deviations," e.g., *bleezemull* and *breeze*. In recall, O29 never reported the functioning of imagery. Her knowledge came "as facts" of association, peculiarity, balance, and other points noted in learning. There were occasional accompanying fragments of imagery, as e.g., in *gnarrpoul*, association with *snarl* and *ghoul*, with a snarling sound, and possibly slight visualization of a snarl, and slight movement of own lips.

These cases of "imageless" spelling are not of the same nature as *automatic* spelling. In the latter, imagery is not used, because the particular spelling habit is so well established that the intermediate links between stimulus and expression have sunk below the conscious level. The reaction is direct, immediate, and almost unconscious. It occurs with observers of any imaginal type, but only obtains with very familiar words. Much of our normal spelling in daily life is probably of this character. The imageless knowledge of the facts of spelling which is typified in the reports of the five observers last described is not an example of such automatic reaction. It may occur when words are but imperfectly known, and when there is self-correction in the reproduction.

E.g. O3, recalling *vrwlbhastt*, gave "*vrwlbhast*—or *bahst*? Know there is *h*." And in *paughtmein*, "at first thought *portmain*, then idea of *paught*, then of *g* in second syllable, then *meign* as like *deign*. No images."

O28, recalling *bleezemull*, gave it correctly, but added that he was "doubtful whether *ee* or *ea*; could not tell what decided; now more or less certain of *ee*. No images."

Such doubt, in the case of the two observers 2 and 8, would have been in the form of confused or alternative images. E.g., O2, spelling *daabhrondt*, said "da? brundt; auditory image of E. spelling, and visualization, but cannot hear third letter." *Mymnjoal* "mimn—cannot see more." And O8, spelling *efflorescence*, "s's and c's are dancing about, cannot get it right." *Proaldetch*, "h keeps coming in wrong half" (inlearning). *Wrighteague*, "a's and u's mixed up, vowels seem to dart about." An interesting point, however, is that this observer, who usually spelled by direct reference to images, made distinction on one occasion between the experience of imagery and knowledge of the facts. Spelling *rhomboid*, she gave *romboid* from her visual image; but said she "felt as if her intelligence was quarrelling with her vision—she knew she was wrong." She finally corrected to *rumboid*.

INTERMEDIATE GROUP.

Of the remaining 22 subjects, Observers 11 and 12 approximated more closely to those entirely reliant upon imagery, and Observers 9 and 19 to the imageless spellers. The others ranged themselves more or less indefinitely between these two groups. It is scarcely necessary to give their full introspective reports, except where some interesting individual difference was presented.

O12 used vivid visual imagery freely, and occasionally auditory, but this was less clear and definite. Reversing *acclimatization*, he "read letters off backwards, didn't say word, waited until vision of whole word came up, and had to go

back several times for a fresh look. In learning, he "felt distinctly that he was impressing images, not noting facts." In reproduction, he frequently saw the word clearly, reading the letters from the image as, e.g., *ystrwðyr*, *geightwief*, and many other words. With *brennigse* (learnt by combined method), spelling was recalled "partly from visual image, partly that as said one letter, next was suggested." With *steezeknaph*, "*knaph* visual, *k* was certainly seen, as it was mute in word." In *throidkurr*, he had auditory image of *rr* in E.'s voice. Motor imagery was used occasionally, as in *mymnjoal*, "image of efforts to pronounce in learning." This subject is not, however, completely dependent upon imagery, and often recalls a spelling by virtue of a mnemonic or "knowledge of fact;" e.g., *steezeknaph*, "knew number of *e*'s in first syllable." *Dalfpeyb*, "*dalf* remembered as *half* with *d*." *Hwllseph*, "no image, knew immediately that there was a *w*." *Gogmolph*, "no image, knew 2 *g*'s, peculiar word." *Shioughrew*, "no image, knew as fact; if do not visualize, reason."

O11 expressed doubt entirely by confusion of imagery; e.g., with *whrwlbhasst*, she said "*vwrlblast*—tried several arrangements; had audito-motor image of letters, but order unknown; decided by visual appearance." With *ystrwðyr*, "visualized, but it was not complete at first, came slowly." *Brennigse*, "visual image of *brenn*, then tried to see whether 2 *n*'s; when at *g* saw by general form that there was another letter beside *s* at end." O11 seemed to be quite reliant upon images in learning and recall.

O9 came near to the imageless group in his methods of learning and recall. He made great use of mnemonics and deliberate categorization of words; and reported only slight imagery. He described himself as "gathering facts" about the words, and his most frequent report after spelling was "simply fact," "knew it as fact." Occasionally the recall was in the form of an auditory image of letters in E.'s voice, as *i o u*, in *shioughrew*. Still more occasionally, appeal was made to visual images. *Dahramn* was given as "*dahramb*; pure memory, *dithyramb* as mnemonic;" then remember *mn*, not *mb*; *n* came up in sound." *Whrwlbhasst*, "possibly visual image when complete, not before." *Kearlmough*, "slight appeal to visual image for confirmation." *Rowbptalm*, *dronrrikke* were visual. *Suubphroff*, and most words with the exceptions quoted, were "fact, mere knowledge, no imagery."

O19 always has incidental visual imagery in spelling aloud, but not when writing. This is not used for spelling, however, "except to indicate whereabouts." "It is not the true medium of memory, but simply a help in spelling aloud as the seeing of what is written is in spelling by writing. The letters are recalled by mnemonic or "knowledge of fact."

O26 memorized the "order" of the letters, not the sound, and used little imagery in recall. In *ptylarge*, "knew *p* as fact;" and so with other words.

O5 used clear visualization in normal spelling. In the experimental words, recalling *gogmolph*, she gave *gomolph*, then added *g*, "visual image came after spelling from sound, saw there was *g*." *Throidkurr*, "visual image of *kurr* clearly, and auditory of these letters." *Mahlgleu*, "visualized to spell, and heard *g l e*." This was her usual method. In some cases, however, the visual image seemed merely to suggest the knowledge, as in *zinfrannt*, "spelt from general form, did not read off."

O13 visualized in order to spell, even words thoroughly known; and if doubtful, the image was confused and fragmentary.

O17 visualized while learning (in the first two methods of B Group of experiments), but "thought she used image to see what letters were, not to impress image." She usually, but not invariably, visualized in reproduction, but did not always spell from the image. E.g., *brennigse* "saw plainly, read off;" *daabhrondt* was "visualized slightly, but not read off;" *rwexemm*, "saw and heard letters, especially *e m m*." This word had haunted O. in the interval "in E.'s voice, and the look of it." *Schavresk*, "didn't actually see it; *sheikh* thought

of and seen; remember self saying those letters, and said over to self before writing, especially *s c h a i*; *vresk* merely a syllable, letters seemed to belong to each other." *Bleezemull*, "remembered *Blease*, a proper name, and that this really visualized *eez*, but without seeing it." *Dearchroam*, "saw but did not spell from image; remembered that *déar* was a word, and *chroam*, not *chrome*; really knowledge." *Hinnsorph*, "no imagery."

O16 visualized while learning, and usually in recall, but was often independent of imagery. E.g., *hinnsorph*, "seemed to remember fact of 2 n's." With *luth-frohe*, "auditory image of letters, but also knew peculiarity *ohe*." *Mnamnsett*, "easy to learn because of absurdity; no images, just knowledge of peculiarity." *Tauldhoss*, "visual image made me put *h* in." *Suubphrol*, "auditory image of *suub*." *Hombfebt*, "fact of 2 b's, no image." *Gogmolph*, "knew too well for imagery." *Bllirewid*, "read off," *Laophich*, "remembering more than imagery."

O25 visualized some words in recall, but reported that he learnt partly by putting words into categories, e.g., *weight* as like *eight*.

It is thus apparent that true imageless knowledge as distinct from automatic spelling is found on occasion with most observers, but occurs almost invariably with those who are of the general imageless type. Its machinery may be of the nature of mnemonics and associations, or of categorization, i.e., assimilation of the new to a known class of word; or it may be "mere knowledge of fact," of the fact that such and such a syllabic sound is represented by such and such letters, i.e., of the relation between a given whole and its parts.

B. KIND OF IMAGERY USED.

On the basis of the preliminary tests, those subjects who relied to a greater or less degree upon imagery in spelling were placed into two groups, according to preferred form of imagery, (a) predominantly visual, (b) predominantly audito-motor. Entire lack of capacity for any form, or completely consistent and exclusive use of any form of imagery was not found, and there was no absolute demarcation between the groups. The distinction was relative, but fairly well marked. Observers 2, 5, 8, 11, 12, 19, 20 and 22 were of a pronounced visual type, O19 being specially poor in auditory imagery. Observers 4, 10, 13, 15, 16, 17, 18, 21, 23, 24 and 25 were of a less marked type, but still predominantly visual. Observers 1, 6, 9, 26 and 27 used little visual imagery, and were classified as audito-motor subjects.

Observers 1—15 took part in the A Group, and 16—29 in the B Group of experiments.

RELATION OF IMAGINAL TYPE TO SPELLING EFFICIENCY.

The preliminary work on the imagery and ordinary spelling efficiency of each observer made it clear that there is at least no direct relation between these two characteristics. Among the 14 subjects classified as poor spellers, 10 habitually used well-developed visual images, either with or without good auditory imagery; three were of the audito-motor, and one of the imageless type. Among the good spellers, there were similarly representatives of various types, including four of the imageless. The two observers (2 and 8), with extraordinarily vivid visual imagery were both poor spellers. There appeared no indication of correspondences between the classifications, and the determining factor of efficiency is something independently of imaginal type.

2. CONTROL OF IMAGERY AND ISOLATION OF FACTORS.

The reports of the observers in Group A of the experiments make it clear that effective and consistent isolation of the speech and visual factors in the spelling complex is very difficult to obtain. The sensory elements may be controlled by experimental conditions, but their imaginal representatives are much less subject to these conditions. Very few observers were able to control their imagery with ease, and none could do so completely. Presentation of spelling material by one method alone, therefore, fails to give any useful measure of isolation of particular factors. At the most it can be handicapped, and there is so much variation in the degree of this handicap from individual to individual, and in the same individual according to the distribution of his attention, that quantitative estimates of the importance of the factors in question are likely to be unreliable.

Of the suppression of vocalization in learning by the visual method, the following reports were made by the visualizing subjects:—

O2: "A constant tendency to pronunciation; always there; attempt to suppress it is a great nuisance."

O4: "Could not rule out pronunciation, especially of obvious syllables; attempt worried me; impossible to keep out. Look and sound are bound up together." She sometimes counted to herself in order to keep it out. "Couldn't help pronouncing every word as soon as I saw it, tried not to; syllables, not letters; distraction."

O5: "Could not keep out articulation; distraction to try." Later: "Could keep out better if looked a little above word, and so got it more as a whole; if looked right at it, had to follow through in pronunciation." Frightfully difficult not to pronounce; could see syllables separately without saying, but when put together sound came. Later, could occasionally get whole word without sound. Did not pronounce letters."

O8: "The sound is quite inseparable from the look of the words; quite unavoidable."

O10: "Tendency to articulate with all words, faint sound attached to syllables; not a great distraction, only vague sort of tendency at best of times; not much temptation." "Very slight articulation, no difficulty in keeping out after first two or three times."

O11: "Could not keep out articulation; difficulty increases with familiarity; word pronounced every time seen; cannot concentrate on look alone, bound up with sound."

O12: "Not much trouble to keep out articulation; pronounced sensible words, but not others; took these as forms or diagrams; but more pronunciation with increasing familiarity. Some difficulty later, had to keep watch."

O13: "Articulation seldom kept out; could not keep it out altogether; tried hard, but a distraction. Holding tongue or saying other words had no effect. Each word said once each time seen, then remembered I mustn't, and stopped. Had to pronounce hardest words most."

O15: "Cannot hold letters by visualization alone; must unify by sound; sound inevitably attached to syllabus; tried just to see, but incipient sound attached. Not so strong when visual groups established."

The audito-motor observers report similarly:—

O1: "Could not syllabify without sound; great tendency to pronounce. Counting prevented vocalization of letters, but not of words; effort to repress articulation of words worried me."

O6: "Could not keep out articulation; big strain and great distraction; easier later, but could not learn so; chiefly wanted to say word, but if prevented, immediately began to say letters."

O9: "Only slightly kept out articulation; great distraction; wanted to say syllables; if prevented, said letters. Could not keep out even by repeating other words. Could not get word as whole without sound. Ran eye up and down systematically; if went through, had to pronounce. Difficulty greater as more familiar."

The imageless group reported:—

O3: "Recognition of letters seemed to involve pronunciation; something just on way to become actual movement of speech; very strong tendency to go over into movement, although never actual sensation. Distraction to keep out."

O7: "Extraordinarily difficult to keep out articulation; impossible to learn letters without it; cannot syllabify. Even articulation of another word does not always prevent it. Cannot get intelligible idea of word without pronunciation; no grip of word."

O14: "Said mentally to a certain extent, no actual movement."

Of the suppression of visualization in learning by the auditory method, the visualizing subjects reported:—

O2: "Visualization very vivid indeed; letters could not be gripped, had no meaning without it; could listen to sound without realizing letters. Could visualize so plainly that imagined them written on roll beside picture."

O4: "Visualized each syllable as pronounced; it seemed necessary for grouping of letters; later, easier to keep out. Visualized each letter and built up until whole word seen. Towards end of sitting kept out altogether."

O5: "Usually visualized beginning of word, but middle vague, dancing about. Later more plainly, and whole word. If repeated word before or after E, this helped to keep out visualization."

O8: "Vivid visualization, quite essential to understanding or memory, had to see before any sense was conveyed at all; could not realize e.g. that *teague* was like *league* until seen. Tried hard not to visualize, but could not help it, had to let self go at times. Never think of letters without seeing them."

O10: "Visualized clearly, whole word as pronounced, and read letters as E said them. If wrong, corrected; if vague, made clear. Not so much later."

O11: "Visualized when spelling unexpected, and tendency increased with familiarity; could not prevent."

O12: "Could keep out pretty well, but cannot learn without impressing visual image."

O13: "Some visualization of letters as said, in printed capitals. Saw wrongly sometimes, and corrected as letters said."

O15: "Tendency to visualize; needed for connexion between words and letters; otherwise meaningless; managed to prevent, but a distraction to do so."

The audito-motor subjects had greater ease in ruling out visualization:—

O1: "No difficulty in keeping out; visualize only when try to do so."

O6: "Vague visualization of letters."

O9: "When spelling was strange, inclined to visualize syllables; but not whole word, and very feebly and vaguely. Might visualize very vaguely when comparing new with known word, e.g., *lomme* with *coalesce*, saw *esce*."

The imageless group reported:—

O3: "Visualized odd letters at first, very slightly and occasionally; and sometimes vague impression of whole word, quite indistinct."

O7: "No tendency to visualize."

O14: "No visual images."

It is apparent from these reports that the imaginal type of the observer colours largely the process of learning. Greater difficulty is experienced in suppressing the preferred type of imagery than in ruling out the form less habitually used.

3. IMPORTANCE OF VOCALIZATION OF WORD IN LEARNING.

Over and above these individual preferences, the general importance of articulation of the words in learning, with all observers, is clearly shown. This was to be expected with the audito-motor subjects, but is found almost equally marked in the majority of the visualizers. The comparative ease with which audito-motor subjects ruled out visual images is in marked contrast to the difficulty felt by visualizers in suppressing vocalization. Two only of the latter, O10 and O12, described it as "not much trouble," "not much temptation," and O12 qualified this by adding that he "had to keep watch, and could not rule out pronunciation in the case of the sensible word." He was a mathematician, well accustomed to the memorizing of graphs and diagrams as visual form. (O10 and O12 appeared to have greater control of imagery in any direction than the other observers, as they reported similar ease in suppressing visual images.) The imageless observers were also under the necessity of pronouncing the words in learning.*

It would thus appear that before the visual symbol can be apprehended as a *word* there must be experience in imagery or actual pronunciation of the corresponding acoustic-motor whole, in order that fusion of the visual and speech elements may be effected. The articulatory factor may be regarded as of primary importance in the learning process. (This is probably accounted for by the fact that, both phylogenetically and ontogenetically, spoken communication is prior to written.)

4. IMAGERY IN RECALL.

With certain exceptions, the imagery used by each observer in recall of spelling corresponded on the whole rather with his preferred form as shown in the preliminary tests than with the method by which the spelling was learnt.

Thus, observers 2, 4, 5, 8, 11, and 13 visualized every word, and used the image in order to read off the letters, save when the spelling was automatic, as sometimes with the sensible word, or when it was remembered as "fact" by mnemonics or "knowledge." The typical reports for these subjects were "visual,

* The question of the exact nature of this insistent articulation is not quite clear. I have called it audito-motor, as the movement and sound elements are so closely bound together, and very difficult to distinguish in introspection. It probably varies from subject to subject, involving in most cases, except that of the imageless spellers, an auditory image of more or less definition, attached to the motor element. The latter was variously described as "mental," "internal," or "actual." It is probable, however, that introspection is incompetent to decide whether the movement is merely imaged or is very slight but actual. This is a question for objective determination, and recent work on unconscious movements of lips, tongue, and larynx would suggest that all "internal" speech is accompanied by actual articulatory movement, which may be of subliminal intensity.

read off," "tried to see to get clear," "tried to see whether two *ns.*" Observers 1, 6, and 9 used the "memory of sound (and movement)." O1 commonly pronounced the word internally and spelt direct from the sound. O6 said "the reference is to memory of self pronouncing internally after E, not to E's voice," in words learnt by the auditory method. She did occasionally "hear the letters." O9, when he referred to imagery, similarly spelt chiefly from the sound as pronounced, or from an auditory image of letters, as e.g., *i o u* in *shiouphrew*, *m n* in *dahrramn*.

The method of learning was, however, not without influence on the form of recall, with most observers. The three audito-motor observers reported occasional visual images of varying definition in recalling words learnt visually.

E.g., O1 visualized *pnedrheuff* and *mough* in *kearlmough*. O6 saw *mymn* in *mymnjoal*, *yst* in *ystrwdyr*, plus "memory of sound and movement." O9 visualized *vhrrwlbhastt*, "consonants came in separately, as learnt, in audito-motor image, visualized when complete." He made "slight appeal to visualization for confirmation" in *kearlmough*, and saw clearly *dronrikke* and *seacelough*.

The visualizing subjects 2, 5, 10, 12, and 15 reported auditory or audito-motor images of letters in the series learnt by the auditory method. O5 "heard" *k u r r* in *throidkurr*, *g l e* in *mahigleu*, and similarly in other words. O10 heard letters in *dahrramn*. O12 heard *r r* in *throidkurr* and *a a* in *daabhrondt*, although "auditory images are never definite and clear, as visual." In *ystrwdyr*, learnt by the combined method, he "visualized to spell, but also had audito-motor images of attempts to pronounce."

O2, while invariably visualizing the words very clearly, save when memory was uncertain, also had auditory images of letters in E's voice and characteristic enunciation, in the two series learnt by the auditory method. With these words confusion was expressed not only as vagueness of visual image but also as failure to hear the letters, as e.g., *daabhrondt*, "*da ? brundt*," cannot hear third letter; no idea what it is."

Observers 4, 8, 11, and 13 appeared to use their preferred imagery, visual, in recalling spelling, whatever the method of learning, and reported no auditory imagery.

These cases of auditory imagery of heard letters may be an artificial laboratory phenomenon. It is probable that clear and definite auditory imagery of letters rarely plays a part in ordinary spelling, for spelling is seldom learnt by an auditory method in actual life. It must, however, be noted that

O27 reported that she was "convinced that she always has audito-motor images of letters in normal spelling, unless the word is so familiar that she does not have to think about it. She always repeats letters in learning, and this process comes up again in recall. Quite certain that there is definite reference to audito-motor image of letters."

This phenomenon in the other observers illustrates the fact that the method of learning does exercise an influence on mode of recall, in at least some subjects. The imagery encouraged by the particular method, while not substituted for a preferred form, tends to supplement the latter.

Two exceptions to the persistence of the preferred form of imagery in series learnt by other methods occurred in the cases of O10 and O12.

These observers, both of the visual type, in learning by the auditory method, reported comparative success and ease in ruling out visualization. In recalling the spelling of these words, if able to recognize or spell the word at all, they

experienced very little visual imagery, using slight auditory images, as e.g., *r r* in *throidkurr*, or "knowledge of fact," as two *gs* in *gogmolph*, or letters of *Shioupghrew*. O12 said when he "does not visualize he reasons."

The combined method of presentation affords opportunity to each subject to learn by his own preferred form of imagery, and its influence is thus similar to that of the preferred form, contrasting with the method in which the latter is handicapped.

5. UNIT OF SPELLING.

The unit of spelling in learning and recall is usually the syllable. That is, the syllable is not a mere sequence of letters, but finds expression as and is felt to be a whole. The letters run into each other and lose their identity, until, as several observers remarked, "the syllable simply *is* those letters." This syllabic grouping is an essential part of the process of learning to spell a given word. For when the merging is completed and the syllable stands as a whole, the letters support each other in recall, and incorrect alternatives can no longer suggest themselves. Where such alternatives are suggested it means that the uncertain letters in the syllable have remained more or less isolated, failing to fuse with their context.

The vague whole of the word is usually felt behind the unit syllables, with increasing clearness as familiarity grows. The relative detachment of the syllables from each other is partly determined by degree of familiarity, but partly also by the particular arrangement of consonants at the end of the first and beginning of the second syllables, i.e., by the degree to which they will run into each other in sound. With very short or familiar words, or those in which the syllables fuse with unusual ease, the whole word is felt to be the unit.* Very rarely, there is no syllabic fusion at all;

as e.g., with observer 9, in the word *vrwrlbhasst*, "the first half of the word did not really become a syllable." In recall, "the letters came in separately, as learnt." They were written down discretely, while the second syllable was written continuously, *vrwrlbhasst*. The word *fbonbyyn* was similarly recalled in separate letters, in this order, *f, b, yy, r h n*. They had not been syllabified in learning.

The syllable is primarily a speech-unit. The letters are grouped by sound-synthesis, by the merging of individual sounds into an articulatory whole. For many observers, this sound-synthesis carries with it a suggestion of visual grouping. With O8 this was very marked. "The letters seem to be in blocks, there is quite a sharp visual division." These "blocks" correspond to the speech units, and must be regarded as the result of the synthetic influence of the syllabic sounds. This phenomenon affords another illustration of the primary importance of the articulatory element in the word-complex.

6. WRITING-MOTOR ELEMENT.

The motor element due to writing seems to have a value different from and much less important than that due to speech, in the spelling-complex. In learning by sound alone in the B Group of experiments,

*A further illustration was also provided by a child of ten years of age, in another group of experiments not here recorded. While learning a series of words by writing from dictation with closed eyes, she wrote each letter separately the first few times, as *g o m b, w i e f*, and so on, with familiarity, as the syllables became a definite whole she wrote continuously, *gomb, wief*.

no observers imaged themselves as writing the words; but all the ten visualizing observers "saw" the spelling in learning by each method. They used the building up of the words in imagery as the letters were pronounced as an essential part of the learning process. O25, and others, in learning by the second method, "saw the word growing in own hand-writing" as she wrote it. In the third method, the words were usually imaged before writing, when sufficiently familiar. Articulation of syllables and occasionally of letters was also used; sometimes this followed E's pronunciation, and other times was in anticipation. This vocalization occurred with subjects of all types. Three observers only reported any tendency or desire to write in learning; O18, "in order to help attention"; O19 "to make it easier to get knowledge of facts;" and O22 because writing brought a visual experience; the writing without seeing "was not helpful." This tendency did not irresistibly pass over into realized movement, as with the speech impulse. It was always completely controllable, and its repression was never an effort or distraction. It was never felt to be essential for the apprehension of the word, as the articulation was in both groups of experiments. O19, e.g., preferred to write as in the third method, but "at the same time needed to pronounce, in order to get relation between syllable and letters; would like to say aloud."

The imageless observers O28 and O29 found writing in learning by any method a great hindrance. Their procedure was entirely one of acquirement of facts, and the establishment of connexions with known words, and the labour of writing obstructed this process.

Observer 27 declared herself largely indifferent to the method of learning, as in any case she relied on articulation of words and letters. In so far as she had occasional visual images of "odd" combinations of letters, the writing was a help.

As a conscious factor in recall, the writing movements similarly play a much less important and deliberate part than the speech movements. Some observers preferred to spell by writing, but this was partly because of the fact that the word is thus seen and its visual form easily corrected, partly because, while writing is continuous, spelling aloud gives the letters discretely, and the syllables cannot be expressed so readily as a whole. O18 reported a "feel of writing in hand" occasionally, when writing in recall, or when trying to remember whether or not a word had been written in learning. This was the only such instance. Other observers were able to decide whether a word had been previously written only by its place in the serial order (as e.g., O27, O28 and O29), or by some association.

Writing-motor imagery was never the direct conscious medium of memory. It does not seem able to act independently. If it occurs, it is merely as an incidental and implicit qualification of the memory as carried by a visual or articulatory image.

These facts suggest that the value of writing in learning spelling is an indirect one. Its intrinsic merit is overlaid and greatly enhanced by the secondary aids to learning that it introduces. It affords a considerable aid to visualization, if the visual form is seen each time it is reproduced. It assists the focussing of attention. It helps to bridge over the gulf between the visual and auditory symbols by producing the constituent parts of the visual form in succession. The visual

letters of a word are given simultaneously save by the actual production of them in writing. The auditory parts are given successively, even in the pronunciation of the word as a whole. The writing of the word supplemented (as all observers supplemented it) by pronunciation during writing effects an approximation of the visual and speech elements in this respect. It assists the exact analysis of the two symbols, and makes clear the correlation of the phonetic units with their visual representatives. It must thus materially assist the final fusion of the visual and articulatory word-wholes.

(v.)—Summary of Conclusions.

1. There are wide individual differences in the mode of functioning of the various factors in the learning and recall of spelling. It is possible to group spellers as visual, audito-motor and imageless, but these groups are not sharply demarcated.

2. In the case of observers of the general imageless type, and on occasion with observers of all types, spelling is independent of imagery, and is effected by mnemonics or associations, or by "knowledge of facts" not in the form of images.

3. There is no relation between spelling efficiency and imaginal type.

4. Isolation of the visual and speech factors in spelling cannot be obtained with sufficient generality and consistency to make quantitative treatment reliable.

5. Articulation of syllables in learning by any method is of primary and universal importance.

6. The writing-motor element derives its value in learning from the indirect aids it affords to the fusion of visual and speech elements, rather than from its own merit as a conscious factor in recall.

ACCURACY IN FRENCH FREE COMPOSITION.—II.

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(iii)—Third Term's Records (*continued*).

AT the conclusion of my last article¹ I was considering the question of repetition of individual mistakes, which it is, of course, the chief aim of the Chart System to prevent.² In spite of the care taken throughout the term, and of the "Red Ring" modification, which met with considerable success, only 19 boys out of 101 could show charts containing no single record of the repetition of a mistake. The sub-joined table (A) shows the number of different mistakes repeated in each class, no account being taken of whether the mistake was repeated once or frequently. Table B deals with frequency of repetition, evidently a more serious matter than single repetitions of different mistakes, since it is much easier for the pupil to overlook, for example, three different notes on a chart than to pass the same mistake for three weeks in succession, the more so if it is marked in red pencil, as was generally done after a mistake had been repeated once.³

TABLE A.—REPETITION OF DIFFERENT MISTAKES.

Form.	No. of Pupils.	No. without Repetitions	No. with Repetitions of different Mistakes.					Total No. of Mistakes repeated.
			1	2	3	4	5	
Mod. III	23	2	6	8	5	2	0	45
Cl. III	23	6	5	4	7	1	0	38
Cl. IV	21	6	6	5	2	2	0	30
Mod. V	15	1	8	2	1	3	0	27
Cl. V	19	4	5	5	3	1	1	33
Totals ...	101	19	30	24 ($\times 2$)	18 ($\times 3$)	9 ($\times 4$)	1 ($\times 5$)	173

TABLE B.—FREQUENCY OF REPETITION OF THE SAME MISTAKE.

Form.	Total No. of Mistakes repeated.	No. repeated only once.	No. repeated twice.	No. repeated three times.	No. repeated more frequently	Grand Total of Repetitions
Mod. III	45	30	11	3	1 (4 times)	65
Cl. III	38	23	12	2	1 (6 times)	59
Cl. IV	30	22	8	0	0	38
Mod. V	27	23	2	2	0	33
Cl. V.	33	21	7	4	1 (4 times)	51
Totals ...	173	119	40 ($\times 2$)	11 ($\times 3$)	14	246

In considering these and other repetition figures, it must be remembered that occasionally, where a boy's entry was not sufficiently

¹See *Journal of Experimental Pedagogy*, March, 1918, pp. 167-175.

²Some experimental work on repetition of mistakes has already been described by Mr. F. B. Kirkman in an appendix to his little book on *The Teaching of Modern Foreign Languages*. I am, not, however, consciously indebted to him in this article.

³Of course, if the teacher's supervision of the chart-revising and chart-recording is effective, frequency of repetition will almost invariably imply non-understanding of the rule misapplied, and this is one of the ways in which the chart is of the greatest service to the teacher, since it is often most difficult to tell if a rule has been thoroughly understood or not.

exact, it was impossible to tell whether the recurrence of the same entry denoted a genuine repetition or not. (Thus, I do not consider a mistake in the agreement of a past participle as being repeated if on the second occasion the auxiliary was not the same as on the first; but it is conceivable that a boy, if careless or hurried, might omit to state the auxiliary on his chart.) In all such cases I have marked the repetition as such unless I have had very strong reason to suspect that it was not one.

It will be seen that both tables reveal a great deal of carelessness on the part of pupils in every class. An attempt was made to interest them in this by assigning to every pupil at the end of the term a "colour," which he printed on his new chart at the beginning of the term following: "Red" was assigned to boys with no repetitions whatever; "White" to boys with one or two repetitions, provided that these were single; "Green" to all other pupils.

In so far as this proceeding enabled the teacher to tell at a glance his most observant and least observant pupils, it was distinctly useful; but it had not the success in decreasing the number of repetitions of mistakes which I had hoped for—partly, I think, because these pupils are all too old to respond to this particular form of stimulus, and partly because no special interest attaches to the colours *per se*, and no other significance was given to them. In the next term there was a certain improvement in the number of repeated mistakes (see below), and it may have been effected by this scheme. But I should prefer to term the scheme a failure, in order to avoid any possible exaggerations, though I believe with a skilful teacher and younger pupils it might be very successfully adopted.

(iv)—Fourth Term's Records.

A few preliminary words are necessary to the consideration of the fourth (and last) term's records. These records have only been made with the object of investigating one particular question, viz., how far the chart is of service, not only in eliminating inaccuracy in general, but also in combating any special form of inaccuracy which may from time to time become prevalent. If by means of the chart we can eliminate at will any kind of purely careless mistake, we have in it an even more valuable instrument than before; every teacher knows how irritating is the sudden appearance and long persistence of a mistake from which he had supposed his class to be free.

Hence the results which follow should not be compared with those of preceding terms, except as illustrating this particular point. In concentrating the attention of the class upon two kinds of error, I may have caused an occasional and temporary increase of inaccuracy in other directions. But before beginning this term's experiments I had already become quite convinced of the value of the chart, and there was no object in re-demonstrating what I think most teachers will by now have taken as proved. For the same reason I am not proposing for the present to compile any further statistics than those given below, which should be quite sufficient to establish the usefulness of the chart system and its applicability to different conditions.

Three special conditions affected the work of the fourth term:

- (1) Only eight weeks' work could be taken into consideration, the length of the term being barely ten weeks. This clearly

reduces the potential number of mistakes, and, in particular, the number of repetitions.

- (2) Against this, however, must be set the disturbing fact that for special reasons the attention of every class was throughout the term concentrated upon the *content* of the exercises written. Not only were all the compositions much more ambitious than the reproductions done last term, but less time was available for the discussion and correction of mistakes, and it was impossible to standardize conditions as in the second and third terms. These facts would lead one naturally to expect a greater number of mistakes than usual.
- (3) Hardly any new boys entered the classes (except in Classical III), but there was more illness than in the preceding term, and though allowance was made for this wherever possible, it remained nevertheless a disturbing factor. Altogether 29 boys out of the 100 whose work is here recorded were absent for from one to three lessons, though comparatively few missed the longer period. Boys who were absent for four weeks or more have been left out of consideration entirely.

Following are the term's records with notes on the nature of the work done in each form:—

*Modern III*¹. 22 boys.

WEEKS.

		1	2	3	4	5	6	7	8	1st Half- term.	2nd Half- term.
ERRORS.	Past tenses confused (small chart) ...	37	21	18	18	11	9	8	5	94	33
	"Slips" ...	6	7	6	11	11	11	11	7	30	40
	Concords ...	13	8	6	4	3	4	11	14	31	32
	Agreement of past participle ...	2	1	1	1	0	0	0	0	5	0
	"Dir" ...	2	4	2	2	5	5	6	3	10	19
	Total ...	60	41	33	36	30	29	36	29	170	124

Nature of work:—

Résumé (without book) of portions of reader prepared during the week. The exercises grew progressively more difficult; in length the passages increased from two to three pages of text, the *plan* was eliminated after the sixth lesson, and small changes (e.g., relating the story in the first person) were introduced into lessons 4, 5, 6.

Points to be noted:—

- (1) A steady decline in innacuracy with occasional checks.
- (2) The standard is considerably higher than last term (p. 172), and much higher than the term before (p. 170).
- (3) Past Tense mistakes are reduced from 94 to 33, whereas last term they declined only from 126 to 71.
- (4) On the other hand three other classes of mistakes show no progress.

¹See note, p. 171. It will be seen that some of the less scientific rubrics, such as "slips," have been reinstated.

Classical III. 23 boys.

		1	2	3	4	5	6 ¹	7	8	1st Half-term.	2nd Half-term.
ERRORS.	Past tenses confused (small chart) ...	61	40	38	23	17	19	4	9	162	49
	"Slips" ...	4	3	3	4	4	10	13	11	14	38
	Concords ...	3	6	11	4	8	3	1	0	24	12
	Agreement of past participle ...	0	4	0	1	2	2	9 ²	1	5	14
	"Dir" ...	8	2	3	6	0	9	11	2	19	22
	Total ...	76	55	55	38	31	43	38	23	224	135

Nature of work.

Résumé, similar to that done in Modern III. The length of each passage varied from 1½ pp. to 4 pp., but the longer passages included much conversation. No changes were made, but the extracts were carefully graded according to length and difficulty.

Points to be noted :—

- (1) Last term's improvement in past tense mistakes (cf. p. 172) is not fully maintained at the beginning of this term, but this is due to the fact that nine boys—a large proportion for the time of the year—are new to the form. Their influence is also seen under other headings.
- (2) There is a steady increase of accuracy with only one check.
- (3) This is chiefly due to the remarkable improvement in past tenses following the introduction of the small chart.

Classical IV. 20 boys.

WEEKS.

		1	2	3	4 ³	5	6 ⁴	7	8	1st Half-term.	2nd Half-term.
ERRORS.	Past tenses confused (4 divisions) ...	20	38	20	21	10	4	6	4	99	24
	Concords ...	5	7	13	12	2	1	2	2	37	7
	Agreement of past participle ...	1	2	0	2	0	1	0	1	5	2
	"Dir." ...	1	7	1	2	3	0	0	0	11	3
	Careless mistakes of inflexion ...	8	16	23	26	23	11	11	8	73	53
Total ...		35	70	57	63	38	17	19	15	225	89

Nature of work.

Expansion of a skeleton supplied, with oral development. From Lesson 3 onwards much more elaborate work was attempted than in Lessons 1 and 2. In Lessons 4—7 the pupils introduced a greater or smaller amount of dialogue. In Lesson 8

¹This exercise was written directly after the steeplechases, and many boys were tired.

²A heroine figured very prominently in this week's story, and six of the nine mistakes consisted in writing "elle . . . est mort."

³Only 20 minutes could be allowed for this exercise, hence it was insufficiently revised.

⁴Between Lessons 5 and 6 some special exercises on the use of dialogue were written.

the skeleton of the story was given, and the pupils expanded it upon their own initiative without any preliminary help or oral development whatever.

Points to be noted.

- (1) These are the best *general* results obtained, and the results in the first section are better even than those in the forms where a special tense chart was used. The large number of mistakes in the last section may partly be explained by the fact that the class gave much less time to the learning of irregular verbs than last term.
- (2) The drop in mistakes of concord, after the first week, was obtained by a semi-artificial method.
- (3) It is interesting to note that the first two weeks' totals are almost the reverse of the first two weeks' totals last term (cf. p. 173). The rise after the first week has been found to be the rule.

Modern V. 17 boys.

WEEKS.

										1st	2nd
	1	2	3	4	5	6	7	8 ¹		Half-term.	Half-term.
Past tenses confused (4 divisions) ...	16	32	19	16	9	8	3	2		83	22
Concords (including past participles)...	1	13	5	8	13	14	6	11		27	44
"Dir." ...	2	2	1	1	0	0	2	0		6	2
Careless mistakes of inflection ...	6	6	5	7	6	4	5	4		24	19
Total ...	25	53	30	32	28	26	16	17		140	87

Nature of work.

Lessons 1—5, description in narrative form, after short oral development, of a picture representing one of the "moments" of a story. In Lesson 1 the story was more straightforward than usual. In Lesson 2 it was considered harder than usual, because a long descriptive passage had to be interpolated. The last three lessons consisted of rather longer exercises—expansions of outlines given after a long (Lesson 6) or short (Lessons 7, 8) oral development. Great stress was laid on *matter* throughout the term.

Points to be noted.

- (1) Last term's results (p. 173) were barely maintained at the beginning of this term, which, on the whole, is scarcely better than last. This may be due to the stress laid on the content of the exercises or to the four removes from and into the form at the beginning of the term, or to both.
- (2) There is a general decline in inaccuracy after the first week. The past tense mistakes decrease more substantially than last

¹This exercise was found easy, and nearly everyone wrote half as much again as usual.

term, though not more rapidly; at the end of the term they are probably as nearly eliminated as is possible.

Classical V. 18 boys.

WEEKS.

	WEEKS.								1st	2nd
	1	2	3	4	5	6	7	8	Half-term.	Half-term.
Past tenses confused (4 divisions) ...	13	3	10	4	5	3	1	0	30	9
Concords (including past participle) ...	11	15	10	13	13	9	7	6	49	35
"Dir." ...	0	0	1	4	1	0	0	0	5	1
Careless mistakes of inflexion ...	3	2	6	3	8	2	3	2	14	15
Total ...	27	20	27	24	27	14	11	8	98	60

Nature of work.

Mainly descriptive, hence perhaps the small number of past tense mistakes, and the abnormally large number of false concords. Lessons 1—3 were reproductions of rather hard descriptions contained in or based upon the reader (*Eugénie Grandet*). Lesson 4 was the writing of a similar description. Lessons 5—8 were the reproduction or imitation of passages selected from Alphonse Daudet and Chateaubriand.

Points to be noted.

- (1) Last term's improvements were more than maintained here (cf. p. 174), except in concords—a fact which I cannot explain. In the last four weeks of the term the work was almost entirely descriptive, but even in description there is sufficient room for past tense mistakes to lead one to expect a far greater number than occur here.
- (2) No decline in the total number of mistakes made occurs till after the fifth week, after which it is very marked. But this rapid decline is due to other causes than the change of the subject for composition; it is clearly caused by increased accuracy in concords and inflexions.

General Conclusions from Collective Totals.

It will be seen from these figures that, although the term's records are essentially those of a *special* enquiry, the *general* results are by no means to be despised, and it is especially instructive to compare approximately the numbers of mistakes made in the second term with those of the fourth.

We must now consider the records of the fourth term in relation to the following special investigations:—

- (1) With what success and in what way can the Accuracy Chart be directed against some particularly prevalent form of mistake throughout the whole of a term?
- (2) With what success can emphasis be temporarily laid upon some special mistake? Does this emphasis affect other mistakes adversely or not?

1. The form of mistake selected for this investigation was that of confusing past tenses, a particularly persistent error, as previous records will show. To some extent the mistakes made under this head are due to imperfect judgment, but the note upon the use of past tenses which every pupil has in his possession was as thoroughly re-explained as possible at the beginning of the term, so that the number of such cases might be reduced to a minimum. I devised two methods of dealing with this form of error :

- (a) In the Third Forms, where these mistakes are most frequent, a special "past tense chart" was ruled, small enough in size to lie, unfolded, within the ordinary chart when this was doubled. This small chart had several *rubriques*, denoting all the mistakes most commonly made.
- (b) In the Upper School no special chart was ruled, but the four most prominent sections of the ordinary chart were reserved for four common tense mistakes, words indicating the appropriate rule being given as a heading in each case. The "standard chart" of last term¹ had, therefore, in the Upper School, to be slightly modified. The results, it was hoped, would show which of these two methods was the more successful, if either.

Between these two methods of conducting the investigation there seems to be little to choose, as far as their own merits are concerned, but a consideration of the tables set out above will show very clearly that the more elaborate method of devising a special "past tense chart" has affected the other common mistakes made to a much greater degree than has the alternative method. I therefore pronounce unhesitatingly for the latter : it is not difficult, by means of prominent position on the chart, blue pencil, and frequent reminders, to keep the besetting sin of any class before it, without the necessity of resorting to punishment. The following summary will make this clear :—

TABLE OF MISTAKES IN THE USE OF PAST TENSES
DURING THREE TERMS.

Class.	2nd Term.		3rd Term.		4th Term.	
	1st Half Term.	2nd Half Term.	1st Half Term.	2nd Half Term.	1st Half Term.	2nd Half Term.
Mod. III	221	109	126	71	94	33
Cl. III	174	120	139	104	162	49
Cl. IV	93	49	116	58	99	24
Mod. V	No records taken.		78	40	83	22
Cl. V	No records taken.		112	42	30	9

2. The attempt to direct the chart temporarily against some fault which threatens to become prevalent was made in three classes. But

¹See illustration, facing p. 169.

in one of these it had to be abandoned owing to two short lessons, one of which slightly curtailed the length of the exercise and the other left no time for revision. At the end of the fourth week it was found in the Classical IV Form that false concords were increasing rather alarmingly (5; 7; 13; 12), and I therefore set on foot a campaign against this kind of mistake. The remaining spaces in the "concord" section were outlined in red, and before each composition was revised I reminded the class to look specially for mistakes in concord, though no help whatever was given (either then or at any time) in the revision. The result was that only seven false concords occurred in the whole class during the remaining four weeks of the term. With the Classical III the same experiment was made during the next week, and in this class occurred only four false concords in the final three weeks of term. I cannot see from the records of these classes that any other kind of mistake increased appreciably during this period, and I therefore concluded that the test was a success.

Repetition of Mistakes.

The results of this term's records of repetitions have already been anticipated, and I have stated what appear to be the reasons for the comparative failure of the "Red, White, and Green" modifications in the middle and upper forms of a public school. With younger pupils I believe that it would have more success, but with boys of fifteen and upwards the best preventive is probably to cultivate in them ever more carefully the sense of responsibility, and to impress frequently upon individuals and upon the class as a whole the urgent necessity for the avoidance of repetitions. If the "Red Ring" modification is applied systematically—i.e., if every boy invariably marks in red the spaces following those in which he has repeated a mistake—it will probably be found that repetitions will steadily decrease in number. But these investigations will have to be suspended for the present; possibly other teachers may be able to take them up.

In this hope I append the repetition tables for the fourth term, which, it will be noticed, are quite remarkably similar to those for the third term. This unexpected similarity suggests to me that a great deal of increased training will be necessary before they can be appreciably improved upon. But it is just this training which the Chart System gives, and in a year's time further investigations may yield far better results.

TABLE A.—REPETITION OF DIFFERENT MISTAKES.

Form.	No. of Pupils.	No. without Repetitions.	No. of Repetitions of Different Mistakes.				Total No. of Mistakes Repeated.
			1	2	3	4 or over	
Mod. III	22	5	6	2	4	4 (of 4), 1 (of 5)	43
Cl. III	23	7	1	6	6	2 (of 4), 1 (of 5)	44
Cl. IV	20	5	7	3	2	2 (of 4), 1 (of 5)	32
Mod. V	17	3	5	4	4	1 (of 4)	29
Cl. V	18	2	9	6	1	0	24
Totals ...	100	22	28	21 ($\times 2$)	17 ($\times 3$)	51	172

TABLE B.—FREQUENCY OF REPETITION OF THE SAME MISTAKE.

Form.	Total No. of Mistakes repeated.	No. repeated only once.	No. repeated twice.	No. repeated three times.	No. repeated more frequently.	Grand Total of all repetitions.
Mod. III	43	28	13	2	0	60
Cl. III	44	27	10	2	5 (4 times)	73
Cl. IV	32	25	5	0	2 (5 times)	45
Mod. V	29	20	6	0	0	32
Cl. V.	24	23	0	0	1 (4 times)	27
Totals ...	172	123	34 ($\times 2$)	4 ($\times 3$)	34	237

Conclusion.

Before concluding this record of a year's experiments in accuracy, I must add a few practical hints for any teachers who feel disposed to adopt the Chart System in their classes without wishing to carry out experiments or obtain statistics as to its value:

1. The Chart can, of course, be used for any kind of exercise—dictations, proses, and the like—as well as for free compositions. I have confined it to free compositions only for statistical purposes, and I now use it in other ways with equal success.

2. Thick lined foolscap seems the best kind of paper to use for charts. (I have tried both larger and smaller sheets before coming to this conclusion.) When folded, a chart will then slip into an ordinary exercise book.¹

3. To those who object that it will also slip out with equal ease, I would reply that only six of my own pupils have lost their charts during the last twelve months. Boys known to be careless can make two copies and keep them in different places.

4. Chart-making provides useful employment for (a) refractory persons who would otherwise receive "lines," (b) bored classes on the last morning or afternoon of term. All my charts for the present term were made by the respective classes on the last day of the term preceding.

5. At the end of a term the principal rules, words, and phrases can be copied from charts into note-books; the charts are then collected and filed for future reference or kept by the pupil, if the teacher so prefers.

6. As the higher classes improve in accuracy it will be found that their charts can be used with increasing effect as note-books. For the Lower School it is better, I think, to have few *rubriques* and emphasize them as much as possible, in order to kill the very worst type of mistake at birth. I have had for some time a special "Reserved Compartment" in the Third Form charts, in which a boy writes down, on his own or on the teacher's initiative, any mistake which he is particularly liable to make. He seldom repeats it.

7. It is well worth while reserving the column on the immediate right of the *rubrique* column for a "Model Entry" (dictated by the teacher),

¹A specimen "Standard Chart" will be found in the March number of this Journal. In the autumn I hope to bring out a Note-book of my own design, based upon the Chart System as described in these articles.

showing exactly how each mistake should be recorded. This saves many unnecessary questions and a good deal of trouble in supervision.

8. I have never found pupils fail to copy their mistakes into the charts (or rather the rules—the pupil must *never* be allowed, of course, to see his own mistake again). But if any difficulty is found it will probably be sufficient to have each of the master's symbols (A, P P, &c.) ticked off by the pupil as he makes the corresponding entry in his chart. This simple course was suggested to me by a boy and is very effective.

9. The *back of the chart* is useful for notes which cannot be made on the front, and also for any general counsels, such as: "Tick off each symbol as the note is copied," "Never write down your *mistakes*: write what is correct;" "Revise your work *very slowly*—word by word and line by line," &c.

10. The *rubriques* may be changed term by term, as fresh mistakes become prevalent in various classes. But the bulk of those shown in the Standard Chart (p. 169) are perennial.

11. One final counsel, if I may presume to give it, is this: Don't attempt to combine the Chart System with the old system of punishments. An occasional careless exercise may, of course, have to be re-written, but this should be as rare an event as possible. My own experience is that if the pupil is introduced to the Chart System he very soon becomes as anxious to write faultless compositions as to take a high place in his form. The interests touched are both practical and continuous, and the appeal to the sense of responsibility I, at least, have never known to fail. There is also a distinct appeal to *esprit de corps*. ("What do you mean by spoiling the past tense results in our form last week?" one boy is reported to have said to another with some vigour.)

* * * * *

Since starting the above record I have read the instructive "Report of an Enquiry into the Teaching of French in London Secondary Schools," issued by the Board of Education in the spring of 1918. It is noteworthy that this report insists very strongly upon the neglect of the *systematic* and *effective* teaching of grammar. This, they say (and their statement is supported by the statistics appended to the report), leads to "lamentable inaccuracy—which extends even to the highest Forms—in written work of any kind." (§ 71.) For my own part I would add that the neglect of the systematic *application* of the grammar is even more responsible for such inaccuracy. But the necessity of some system like that of the Accuracy Chart could hardly be better shown than by two remarkable quotations, with which I conclude. The first (§ 81) describes the "ineffectiveness" of many composition lessons. "(The free compositions) are collected and corrected by the teacher," [after being written during evening preparation!] "the corrections being sometimes quite inadequate owing to careless haste, sometimes over-elaborated owing to mistaken zeal; the papers are returned to the writers with caustic comment or pious exhortation—only to be relegated to oblivion as soon as the teacher's back is turned."

And further (§ 76): "Many Schools appear to proceed on the tacit assumption—to which one School gave loud and insistent voice—that gross blunders in written work cannot be eliminated at any stage." I can only add that if such teachers are not convinced by these articles that the assumption is erroneous. I shall be only too pleased for them to look as closely as they will into my private records of these investigations, and also to answer any further questions whatever on the system which I have here described.

THE TRAINING COLLEGES AND THEIR TASK.

BY PROFESSOR H. BOMPAS SMITH.

I SUPPOSE that those of us who work in Training Colleges are often more or less dissatisfied with ourselves and with each other. We realize the importance of our task, and yet have an uncomfortable feeling that our Colleges are not playing their proper part in the promotion of educational efficiency. We dream of Colleges which will be the centres of educational reform, a source of inspiration and high ideals, sending forth a continuous stream of teachers eager and able to improve their gifts and become the standard bearers of the educational host. But in our less optimistic moods we think of our existing Colleges in which these aims are not attained, which for various reasons are not in the forefront of the battle, whose light shines dimly through a veil of traditional scholasticism, and which do not enjoy the confidence of the best teachers in the schools. I do not imply that this despondency is wholly justified. Some of our Colleges are doing work of the very highest quality, while others are only in part responsible for the weaknesses which beset them. Nevertheless we can hardly flatter ourselves that all is well. The Colleges as a whole must clearly gird up their loins afresh if they would not be loiterers by the way in the race that lies before us.

If by Training Colleges we understand all institutions in which a specific course of professional training is given to intending teachers, it seems clear that in the future the task of such Colleges will be wider and more complex than it has been in the past. The field of education is being continually enlarged. New types of schools are successively evolved to meet hitherto neglected needs. To the traditional Primary and Secondary Schools we have long since added Technical Schools of various kinds, and now we are to see Nursery Schools and the great experiment of part-time Day Continuation Schools for adolescent workers. Hence the question arises whether, and if so how, the teachers in these new types of schools are to be trained for their profession. There are signs that the necessity for professional training of any kind may be disputed, or that short courses of lectures and demonstrations, or perhaps a renovated pupil-teachership, may be regarded as sufficient. The local authorities will be faced with the problem of recruiting a large body of new teachers, and may be tempted to lay hands suddenly on any men and women they can get. They will be conscious, avowedly or not, that untrained or semi-trained teachers will be cheap. But if we staff our Nursery Schools mainly with untrained teachers, we shall miss the opportunity of effecting a social reform of great importance, while if our Continuation Schools are similarly staffed we shall, I believe, incur the risk of a grave national disaster. Unless the Continuation Schools are both efficient and attractive, compulsory attendance may be viewed as simply a fresh device for keeping the workers in subjection, and the existing social and industrial unrest will be intensified. The question of training is, therefore, bound up with very important issues. The decision as to the extent to which training shall be required will not rest with the colleges, but they ought, at any rate, to show their willingness to provide any facilities they can, and also their ability to devise the new methods which will be needed. If, as we hope, an adequate course of training is deemed essential for, at any rate, the majority of the teachers, the Colleges will be bound to attempt the conquest of a new and difficult country.

But any extension of their field of work will make it all the more important for the Colleges to be freed from the defects of organization which already interfere with their efficiency. Any radical improvement will, I believe, involve changes in at least two directions. First, the Colleges must become in a fuller measure the organs of the teaching profession as a whole and be brought into closer relations with the schools, the universities, and the professional bodies. At present the Elementary Training Colleges tend to be used by the administrative authorities for the purpose of securing a supply of indentured labour for the schools. Secondly, the system under which boys and girls are bribed to enter the profession by means of special grants and bursaries must be abandoned, or, at any rate, greatly modified. As a matter of fact, the system has notoriously failed to produce the supply of teachers we require, although it has diverted into the profession a number of men and women whose proper calling was elsewhere. The teaching profession will never be adequately manned until the conditions under which teachers work and the consequent opportunities for service are such as to lead a sufficient number of suitable men and women freely to choose teaching as their vocation. How this result can be achieved we cannot here discuss, but its attainment is no less important for the Training Colleges than for the schools. It is unfair to the Colleges to have among their students men and women with little capacity or inclination for their future work.

We cannot, however, wait for these changes to be accomplished before making ready for the task before us, and I therefore desire to suggest one or two directions in which, as it seems to me, progress might be made without delay. If we adopt Herbert Spencer's long-worded formula, we may say that the Training Colleges must move forward in their process of evolution by transforming their present indefinite, incoherent homogeneity into a more definite and coherent heterogeneity. As things now are, we have in the main two groups of Colleges, elementary and secondary, each of which is roughly homogeneous, but only loosely connected with the other. For instance, the Board's regulations for the two types of Colleges are quite distinct. Moreover, the relation of the Training Colleges to our whole system of education is certainly indefinite. Not only may students whose training has been designed as a preparation for elementary school work pass straight from College into other types of schools, but, so far as secondary and technical teachers are concerned, the whole question of training is in a highly nebulous condition. Hence, the present position as well as the developments we anticipate show the need for greater variety, greater coherence, and greater definiteness. We require, for example, more varied courses for teachers in different types of schools. In the future our teachers will be drawn from many sections of the community. They will not nearly all have been bursars, or pupil-teachers, or pupils in Secondary Schools, or University students. A large proportion of them will, no doubt, continue to be of the traditional type, but the Colleges ought also to find room for the skilled mechanic, the man or woman with experience in commerce, for people like Scoutmasters or Girl Guide captains, for those who desire to superintend play centres, and for girls who will work in Nursery Schools. Some steps are already being taken in this direction, but the whole problem has not yet been faced.

Increased variety must, however, be accompanied by a fuller measure of unity and coherence. Just as a teacher should be a human

being who lives a human life partly by doing a special kind of work, so a teacher, whatever his school or subject, is before all things a teacher, although he may exercise his calling in some particular field. His function as a teacher is fundamentally the same whether he teaches young children in the slums or prepares his boys for Oxford Scholarships. This commonplace is universally accepted, but its consequences are not always clearly realized. For surely it follows that the Colleges must have as their primary purpose the training of teachers as such, and only in the second place the training of teachers for primary or secondary schools or specialists in some group of subjects. The particular field in which a man intends to work is, indeed, an important consideration. It ought to be determined by his personal qualities, and the decision ought undoubtedly to give a special bias to his course of training. But we must recognize in practice, as we do in theory, that the art of teaching is essentially one wherever it is exercised. When we come to the applications of this principle there is room for much difference of opinion. My own view is that just as we have one register of teachers so we should have one teachers' certificate, though the certificate might state the particular branch of teaching for which its holder had been trained. So long as the Board of Education issues regulations and gives grants for training there should, I think, be one set of regulations for all training colleges and the grants should be on the same scale for all. At present, as is well known, the Secondary Colleges are in danger of extinction, because the grants paid for secondary students are so much lower than those paid on behalf of primary students. As a first step the Board might be requested to pay the same grant to secondary students as it now pays for primary students in the last year of a four years course.

The urgent need for some such changes as I have suggested is illustrated by a particular problem which will confront us at the conclusion of the war. On the one hand there will be a great demand for teachers, both to remedy the existing shortage and to meet the requirements of the Education Bill. On the other hand we may expect to find a considerable number of women and a smaller number of men who, after having been engaged on some form of war work, will be prepared to enter the teaching profession if facilities for so doing are afforded them. Such men and women will be likely to prove valuable recruits, as they will probably bring a new atmosphere and breadth of outlook into the schools in which they teach. We may hope that among them may be found not only a good many teachers for Continuation Schools but also some teachers for existing schools, both primary and secondary. It seems to me essential that these teachers should be trained, and the question therefore arises whether the Colleges will be able and willing to undertake the work. If the Colleges are to render this service to the nation they ought, I think, to make immediate preparations for dealing with the situation. Special courses may, for instance, be arranged suitable for students of this special class. The conditions of entry may have to be altered or at any rate made more elastic. But caution will be necessary for two reasons. First, an adequate standard of knowledge and general culture must be maintained and, secondly, there is a danger of our succumbing to the fascination of short courses. There are already indications that this danger will be a real one, but in my opinion a year's course should be the minimum. It is true that a shorter course may be better than no course at all; yet

to lower the accepted standard of training would surely be disastrous. If such courses are to be established at one or more of the Training Colleges, the Board of Education must be prepared to assist them with adequate grants and in other ways. Moreover, some definite machinery should be set on foot for making the courses known among those for whom they are intended.

My suggestions have dealt only with questions of organization, but it is clear that progress in organization will be of little value unless it is accompanied by a widening of the outlook of the Colleges themselves. If the great task of contemporary education is to transform the dominant material and social interests of our time by subordinating them to the ideal interests in which alone we can find permanent satisfaction, the Training Colleges ought to play a leading part in the efforts to attain this end. They should be pre-eminently the home of high ideals, places in which the teachers while their work is still before them may spend a season in the House Beautiful under the care of the Interpreter, beholding some of the glories of the world as it might be.

Since the above was written the alterations of the Board of Education's regulations for Training Colleges have brought us a step nearer to the realization of some of the aims proposed. The Colleges will in future have greater freedom in arranging their students' courses, and with this greater freedom an added responsibility.

H. B. S.

THE EDUCATION OF NURSERY SCHOOL TEACHERS.

BY H. BROWN SMITH.

IT is early days to be too dogmatic or too detailed in this respect; but one thing is quite evident—that the Nursery School teacher is doing a very delicate, subtle, and highly specialized form of work, and consequently she must be a very highly trained specialist.

In what directions, therefore, does her training lie?

1. It is quite evident that the Nursery School is a social institution, established to meet certain needs, some general and some more definitely local: the Nursery School teacher is therefore a social worker of a special type with a very important kind of social work to do. She must learn to read the district as the geographer reads a map, e.g., the characteristics of the neighbourhood in relation to housing, employment, shopping centres and prices, means of procuring food; the existence of any outstanding physical features, the special agencies for child welfare already there, and their nature. A fairly detailed study of social science will therefore be part of her training.

2. Taking for granted the general psychology that every teacher has to study, the Nursery School teacher must specialize on such aspects as the development of instincts and tendencies, and especially the nature of play, the nature of fatigue, the growth of habits, the development of language, the characteristics of the development of the senses, the symptoms of backwardness in young children.

3. She must study carefully phonetics with special reference to the development of the speaking voice and the habits of right breathing.

4. Again taking for granted the normal course in physiology and hygiene studied by all teachers in training, the Nursery School teacher should give special consideration to such points as (a) food, sleep, exercise, the phases of growth and development in relation to young children; symptoms of childish ailments and illnesses; (b) the building of the Nursery School.

5. On the practical side, she should have some kind of hospital experience in which the needs of children are specially considered. The exact nature of this will depend on the age at which children are admitted to the Nursery School; possibly a babies' hospital, a clinic, the out-patient children's department of an ordinary hospital, where accidents and the less serious ailments are treated, should be among the various experiences necessary in this direction.

6. A Nursery School teacher should have a background of what, for want of a better name, might be called general culture, because she is in touch with the beginnings of so many things. There are certain aspects of culture that she will have to bring into direct contact with her work, such as some knowledge of gardening and the care of living things; a knowledge of children's literature and a good standard of choice in this direction; ability to play and sing reasonably well, and some experience and taste in the choice of pictures and picture books. Her knowledge of educational toys is implied in her study of play. She should have some skill in handicraft, so that she may guide the beginnings in children, and actually make apparatus necessary for the nursery.

7. Considerable time should be spent in a good Nursery School.

Such are the fundamental requirements of a nursery teacher, and without some such training she may be as dangerous as the unqualified doctor. We cannot play with the human spirit any more than we can let the quack meddle with the body. If doctors are so unwilling to let even such a natural genius as Mr. Barker perform miracles of bone-setting, we must surely be more afraid of letting amateurs help in the development of the undying spirit!

But the nursery teacher must also be a good human being, with an individuality and a personality that no amount of training can mould into a type. Such terms as "the typical nursery teacher," "the model nursery school" must be banished; each school should be a product of its own district with its special needs, and each teacher must stamp her personality on her own school or group of children.

REVIEWS.

Infinitesimal Calculus. By Prof. F. S. Carey. (Pt. I, xiii + 149 pp., 6/-; Pt. II, x + 356 pp., 10/6.) Longmans, Green & Co.

THESE two books together represent in many ways one of the pleasantest elementary accounts of the calculus we have seen for some time. In Pt. I, the fundamental ideas of number, function, continuity, and differentiation and its inversion are introduced and discussed with illustrations; and in Pt. II, after the

introduction of the exponential function and an illustrative chapter on dynamical problems, these ideas are developed and applied to the usual problems of differential geometry. A chapter on differential equations and one on nomography complete the work.

The subject matter throughout is handled in a most thoughtful manner, and is quite on modern lines. In parts, however, there appears to be rather too much elaboration of the discussion. Why not leave something to the reader to think out for himself? A plain statement of principles, with proofs and a few leading questions and examples, are all that is necessary to a student, if he is to be taught to think about a subject and express himself in it. Anything beyond that, merely tends to encourage mental laziness.

The same principle carried to its logical conclusion would, of course, necessitate the exclusion of all illustrative subject matter, but there seems to be no objection to this. The idea of relieving the monotony of the formal development of a subject by explaining concurrently its mode of application may be useful as a guide in framing a syllabus of work, but its development in a single text-book results not only in overlapping, but also usually in a scant and awkward treatment of the arbitrarily chosen subject. Compare, for example, Chapter XIII of the present book.

The details of the work have been so carefully composed that there is little in them to criticize. In the proof of the fundamental mean value theorem the continuity of the differential coefficient is quite unnecessarily assumed (cf. also § 204), and the statement of the theorem does not make it clear that it is true for an open range. The definition of an integral on p. 178 seems liable to grave misapprehension. The geometrical portions of the work are on the whole well done, but the discussion is not always so neat as it might have been; and in some places an analytical argument seems to have been preferred to the simpler geometrical one, this being specially the case in the discussions of curvature in Pt. II (§§ 176, 178-180). The short paragraphs 235, 236 contain most important suggestions which would have paid for further elaboration.

Nevertheless, these books may be strongly recommended to teachers as an excellent general text for class use. A collection of well-chosen examples is appended to each section of the work.

School Efficiency. By H. E. Bennett. (x + 374 pp.) Ginn & Co. 6/- net.

THIS book is an excellent survey of the conditions which govern efficiency in school-keeping in the widest sense of that word. The earlier chapters are concerned with questions of Hygiene. The subject is treated with that "spaciousness" in view, which is perhaps only possible in a relatively new country, and some day, perhaps, when our people have convinced themselves that the reconstruction of our towns on the grand scale is essential to our national life, we may get back to the "Athenian gymnasium ideal, but with the child as centre," as the author informs us many American cities are doing. All that he has to say on this topic is admirable reading. When we have made up our minds that "no disease shall be communicated through the agency of the school," what enormous changes will have to be made!

The remaining chapters deal with general questions of organization—methods of promotion, marking, punishments, home work, community work, and the like—all in a brief, pointed, and suggestive way which cannot fail to interest professional teachers. Professor Bennett is purposefully dogmatic, but as he gives a useful list of readings at the end of each chapter, the reader may pursue the topic further if he cares to do so. The book impresses one as based upon a long and varied experience. It is attractively written and exceedingly well printed.

Psychology. By C. H. Judd. (Second completely revised edition.) (xix + 358 pp.) Ginn & Co. 7/6 net.

THE appearance of a second edition of Professor Judd's *Psychology* is a welcome sign of the interest in the subject as well as a fitting tribute of appreciation of his

work. It has been so largely revised as to make almost a new book. From the teacher's standpoint we know no other work which so adequately and so clearly surveys the subject from the standpoint of what may perhaps be called "genetic behaviour." This is, of course, precisely the point of view which is of importance to the teaching profession. We commend it most warmly, though we suggest that the third edition might be improved by giving references for further reading, especially in the last two chapters on Mental Hygiene and Applications of Psychology, both of which are necessarily slight.

Fifty Years of American Education. By E. C. Moore. (96 pp.) Ginn & Co. 3/6 net.

THIS inspiring little book was written at the request of the publishers as a memento of the fiftieth anniversary of the firm. The great service which the house of Ginn itself has rendered to education since its foundation in 1867 makes the book a fitting memorial of its own success, but Dr. Moore has not dealt with that aspect of the question. His commission was larger, and he has given the broad outlines of what is little less than a national romance in a telling way. The book is of course slight, but we are left with a vivid impression of a great undertaking springing from a deep national consciousness of its importance, and carried through in a spirit of magnificent pride alike by legislature and by public-spirited individuals. The bequests to education from 1871 to 1914 in the United States amounted approximately to £120,000,000. The story is carried right on to the present day, closing with the efforts which Universities are making to lift professional studies out of the hopelessness of mere empiricism to the level of schools of social science.

BOOKS RECEIVED.

Goethe—Torquato Tasso. Edited by J. S. Robertson. (lxxi + 191 pp.) Manchester University Press and Longmans, Green & Co. 5/- net.

Le Mystère d'Adame. An Anglo-Norman Drama of the Twelfth Century. Edited by Paul Studen. (viii + 80 pp.) Manchester University Press and Longmans, Green & Co. 4/6 net.

Rousseau—Le Contrat Social. Edited by C. E. Vaughan. (lxxv + 184 pp.) Manchester University Press and Longmans, Green & Co. 5/- net.

[These three volumes are the first of a series of texts intended chiefly for University use and for the Higher Forms of the Public Schools. They are edited by distinguished scholars, and will fill a real gap in the easily-accessible material for more advanced linguistic study. Training Colleges will also find the series useful for their students taking University or other higher courses. We may especially draw attention to Professor Vaughan's edition of Rousseau's great political document as particularly likely to interest young men and women who are preparing for the teaching profession.]

Molière—L'Avare. Edited by A. T. Baker. (lxxxvi + 109 pp.) Manchester University Press and Longmans, Green & Co. 3/- net.

[The chief feature of the book is the introduction, in which Professor Baker aims at giving that historical, social, and literary atmosphere which only can make Molière, in the true sense, intelligible to English readers. It is an interesting and scholarly piece of work, written by one who knows how to make his subject appeal to young students. The book is sure to find a warm welcome in the schools.]

Whittier and His Poetry. By W. H. Hudson. 143 pp. Harrap & Co. 1/6 net. [A critically sympathetic account of Whittier's life and work which cannot fail to

be helpful to students of poetry. The volume is a fresh addition to that most useful series, *Poetry and Life*, by means of which the Editor and the Publishers have done so much for the intelligent study of literature.]

The Psychology of Special Disability in Spelling. By Leta S. Hollingworth, assisted by C. Amelia Winford.

Teachers' College, Columbia University. (vi+105 pp.)

Experimental Tests of Mathematical Ability and their Prognostic Value. By Agnes Low Rogers.

Teachers' College, Columbia University. (v+118 pp.)

Mother Stories. By Maud Lindsay. (192 pp.)

More Mother Stories. By Maud Lindsay. (188 pp.) } Harrap & Co. 4/6 net.

[These prettily-illustrated volumes are obviously inspired by Fröbel's *Mutter and Kose Lieder*. They are daintily-told nature and domestic stories.]

Camp Liberty. A Farm Cadet Experiment. (24 pp.) Bureau of Educational Experiments, New York. 10 cents.

TRAINING COLLEGE ASSOCIATION.

Minutes of Meeting of Executive Committee, April 6th, 1918.

Present:—Rev. Canon Dennis (President), in the chair; Miss W. Mercier and Rév. V. W. Pearson (Vice-Presidents), Mr. T. Raymont (ex-President), Rev. H. A. Brer, Miss Blake, Prof. T. P. Nunn, Mr. Holgate, Miss Dent, Miss Wood, Miss Allan, Miss Noakes, Miss Lilley, and the Secretary.

Apologies for absence were received from Miss Lloyd Evans and Miss Gowan.

- (1) The Minutes of the last meeting, on Feb. 22nd, were read and confirmed.

It was decided to print the Recommendations for a programme of T.C. reform (as contained in the Minutes, with Section VII amended as below), and send copies to the *Times Educational Supplement*, the *Journal of Education*, *School World*, *Education*, and *The Head Teacher*.

- (2) The Sub-Committee to deal with the Syllabuses and Examinations in Physical Training and Hygiene was appointed as follows:—

(a) Representing the administrative side:—Rev. R. Hudson, Miss Hawtreay, Miss Preston, Miss S. E. S. Richards, Miss Smith (Hereford), Rev. D. J. Thomas, Mr. Welpton.

(b) Specialists:—Miss Blackham, Miss Blyth, Dr. Lee Bolton, Mr. A. P. Braddock, Major Cole, Miss Clarke, Mrs. Clout, Mr. Davies (Crewe), Miss Duffy, Miss Hartle, Mr. J. W. Jarvis, Miss Kennedy, Miss Morgan, Miss Mytton.

(c) The Officers of the Association (6). (Mr. J. W. Jarvis to be convener.)

N.B.—It was understood that the appointment of those who are not members of the Association is subject to their becoming members.

- (3) Section VII of the Recommendations (see (1)) was then amended as follows:—

That as the training of teachers rests upon a common basis of educational principles, the rigid distinction made at present between Elementary and Secondary Training Colleges should cease.

In view of the unsatisfactory position of the training of teachers for Secondary Schools, and of the urgent need for training teachers for Day Continuation, Nursery, and other special types of schools, it is suggested that the Board of Education be asked—

- (1) To recognize one general scheme of training for intending teachers in all types of schools, with differentiation according to the type of school for which the particular students are intended ;
- (2) To place intending teachers in secondary schools on the same footing as regards grants as the present four-year students in Elementary Training Colleges.

It was decided to endeavour to arrange a conference with the N.U.T., the Head Masters' Association, the Head Mistresses' Association, the Teachers' Guild, and the Federation of Technical Teachers, on Saturday, June 1st, at 10.30, at the London Day Training College, with five Representatives from each Association.

The Representatives of this Association were appointed as follows:—Canon Dennis, Miss Allan, Mr. T. Rayment, Prof. H. Bompas Smith, and Miss Wood.

- (4) The Report of the Sub-Committee on "Nursery Schools" was presented, and with amendments and additions made by the Sub-Committee and the Executive Committee, now reads as follows:—

Report on Training of Teachers for Nursery Schools.

1.—The Nursery School.

The general character of the training which should be required of the future Nursery School Teacher must necessarily be determined by the aims and functions of the school. These aims and functions cannot be here discussed in detail, but it is necessary briefly to indicate the task of State-aided Nursery Schools more particularly since some aspects of their work have not received the attention they deserve.

The work of a Nursery School may be regarded from three points of view ;—

Firstly—It should promote the physical welfare of the children, both by providing a healthy environment, with special regard to fresh air, sleep, and space for freedom of movement, and also by securing careful attention to the health, the nourishment, and the cleanliness of the children, and their training in right habits. The life should be an open-air life, and not a schoolroom life with visits, however frequent, to the playground. School baths will be essential, and school meals, and there should be a close connexion between the Nursery School and a School Clinic.

Secondly—The School must provide for the mental development of the children by giving them material and opportunities for play and for experiences suitable to their years in the life of garden and nursery. Standards of formal instruction are inapplicable in the Nursery School.

Thirdly—The School must be small and in close touch with the homes, for, when such young children are concerned, frequent consultation with their parents must be regarded as part of the teacher's work. The school should always be free for the parents to visit, and the teachers should be familiar with the children's homes.

These aims may be very difficult to realize if the Nursery School is invariably organized in connexion with an existing Elementary School.

The work of the Nursery School Teacher would thus appear to be compounded of that of the nurse, the teacher, and the social worker, and her training must have regard to the threefold role she should play.

2.—The Teachers.

The question at once arises—Are all members of the staff of a Nursery School to be of one type? Is there need for differentiation beyond that of age and experience? The first step towards an answer is perhaps best taken by determining what should be the qualifications of those teachers who would be regarded as fully trained and certificated. We believe it to be of great importance for the future,

not only of Nursery Schools but also of educational knowledge and practice as a whole, that the Nursery School Teacher, whose work will lie with the critical years of early childhood, should not be inferior to other teachers either in general or in professional qualifications. It should not be possible for the less competent candidates for the teaching profession to gravitate naturally towards the Nursery School. The Nursery School Teacher, then, should as regards her Secondary School Leaving Certificate and the length of her training comply with the conditions laid down for Elementary Teachers as a whole. The subjects of her study at College must vary, and the course of her training differ from theirs in many important features, but the final certificate awarded her should be the same as that given to other certificated elementary school teachers, and should carry with it the same status and remuneration.

3.—The Training.

(a) In planning the Two Year Course of Training the threefold role of the Nursery School Teacher must be kept in view. Skill in the physical care of young children must be developed, partly by appropriate lecture courses under the direction of a medical man or woman, and by practical work in Nurseries and Nursery Schools, but also by adequate experience in a Babies' or Children's Hospital or Clinic which will inculcate that high standard of hygiene which is of first importance in a Nursery School.

Secondly—The student must be introduced to the best modern theory and practice in the education of young children. She must continue her studies in those subjects the Regulations describe as general, both to enrich her mind and personality, and to enable her to find and to seize opportunities for enlarging the children's interests and experiences. Considerable latitude is already allowed by the Board in the choice of subjects and the framing of syllabuses, and there should be no difficulty in the construction of suitable courses. In particular it might be urged that some genuine studies of literature on the one hand, and of living plants and animals on the other, are indispensable. The value of hand-work, art, and music will be apparent.

Thirdly—Some study of Social Science that shall bring the student into contact with the problems and conditions of life in the types of neighbourhood Nursery Schools are likely to serve, is essential.

(b) One Year and Special Courses of Training.

Though in the future it is probable that students will pass straight from an appropriate course in a Training College to a post in a Nursery School, yet there are doubtless many teachers of experience who, when these schools are first established, will desire to take up work in them. Such teachers, we would urge, should be adequately assisted by the Local Education Authorities to take a One Year Course of Training specially devised for their needs. We would recommend the provision of such courses, as we believe it to be of vital importance that the Nursery School movement should be well established by teachers of special aptitude and knowledge, and the average College course has not in the past been planned to give that thorough training in such subjects as Child Hygiene, nor that outlook on the social aspect of a teacher's work which are of first importance to the Nursery School Teacher.

The teachers we are here considering are those eligible for a One Year Course under the existing Regulations, and the course they take should be specially adapted to meet individual needs and to supplement individual experience. We believe, also, that the conditions of admission to a One Year Course should be amended so as to admit those whose training and experience of child-life may be regarded as equal in value to at least one year of the Training College Course. It is probable that there are young women eminently well fitted for the work of the Nursery School, and desirous of undertaking it, who possess the School Leaving Certificate demanded from entrants to Elementary Training Colleges, and

who have already taken a course of training in child management and welfare. When the new career of Nursery School Teachers opens before them they may desire to follow it. It might be required of such candidates, that their training should have been taken in some institution which could be officially recognized as providing a course appropriate to part of the training of a Nursery School Teacher. The further course leading to Certification would, as in the case of the One Year students mentioned above, have special reference to those sides of the work with which the candidate has least experience. We do not anticipate that this avenue to Nursery School Teaching would ever be followed by many, but, especially when the Schools are first being established, it is desirable that competent teachers should be drawn from as wide a field as possible. This will necessitate an extension of the conditions under which candidates may be admitted into Training Colleges for a one-year course.

We do not consider that there should be in the Nursery School any other Teachers than those who would be recognized as fully trained and certificated.

4.—The Nurse Attendant.

The Nurse Attendant would be a member of the staff, working under the direction of the Head of the School, and would be chiefly engaged in assisting to carry out the first aim of the Nursery School, the promotion of the physical welfare of the children, the supervision of their personal cleanliness, the provision of meals, &c. Such attendants or Nurses could be recruited as Probationers from 14 years of age and upwards. They should be chosen for their personal qualifications, and receive a training in their work, under the direction of the Head Teacher, which might be recognized by a Certificate of Competency awarded to them after a period of satisfactory probation, but not earlier than the age of 17. From the first they should be paid a wage. The training the probationers would receive should fit them, not only for responsible posts as Nurse Attendants in Nursery Schools, but for Attendants in Infant Welfare Centres, Nurses in Creches, or in private families. Some might proceed later to train as Hospital Nurses in General or Children's Hospitals, and the value of the training for home life and for motherhood will be obvious.

5.—Co-ordination of Child Welfare Work.

The Co-ordination of the various forms of Child Welfare Work will doubtless be undertaken in the future, if not in general, at least in certain cases or localities. The association of the School for Mothers with the School Clinic and the Nursery School into a centre of Mothercraft and Child Welfare might prove an experiment full of possibilities for the future of social and educational work. In the directorship of such an institution—or rather group of activities—the Nursery School Teacher of some experience, who had added to her qualifications some more specialized knowledge of (for example) Mothercraft and Nursing, should find a wider field of work closely related to her past experience.

It was decided to print this Report, and send copies to the Board of Education, Local Education Authority, and the Educational press (*Times*, *Schoolmaster*, *Schoolmistress*, *Child Hygiene*, *Child Life*, and the Association's Journal).

- (5) The Report of the Sub-Committee on Special Courses of Training as Teachers for ex-soldiers and sailors and other war workers, was presented, as follows:—

Minutes of meeting of a Sub-Committee of the Executive Committee of the Training College Association, appointed to consider the question of Special Courses of Training as Teachers for ex-soldiers and sailors and other war-workers, suggested in the memorandum brought before the Executive Committee of the T.C.A. on Feb. 22nd, 1918.

The meeting was held at the University of London Day Training College on Friday, April 5th, at 4 p.m. Present: Principal Pearson (Chairman), Miss Mercier, Professor Adams, Mr. Raymont, and Principal Workman.

Dr. Workman informed the Meeting that the University of London had passed a scheme for the shortening of degree courses for ex-soldiers and sailors. He also stated that a Departmental Committee of the Board of Education had been appointed to consider special courses of training for such men, that certain Principals of Colleges had already been consulted, and that some men were already in training.

The Sub-Committee agreed with the general principle of the provision of such courses, and was of opinion that, in the case of men, the need was urgent. The case of women war-workers was not so clear, and required careful consideration. It recommended the appointment of a Sub-Committee of the Association to deal with the whole question, specially in respect of—

- (a) The nature of the proposed courses;
- (b) The means to be taken to spread information among those for whom they would be designed;
- (c) The provision of courses for women war-workers.

It was decided that the same Sub-Committee be appointed, with the addition of the following:—Dr. Workman, Miss Allan, Miss Wood, Miss Hawtrey, Major Griffiths.

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MR. P. A. BARNETT—A TRIBUTE AND A RETROSPECT.

IT is a little difficult at times when great forward movements are in progress to keep in mind the work of those who in one way or other have helped to make such movements possible. Mr. Fisher's Education Act would never have been passed had the schools of the country not so far justified themselves as to create a demand for more.

Legislative and administrative reforms in the sphere of education always attract widespread attention, and even well-informed persons commonly think of national education in terms of Acts of Parliament. It should not, however, diminish our appreciation of the vast possibilities opened out by Mr. Fisher's Act, if at the same time we take note of the changes in the spirit of English education which have been quietly going on during the last thirty years—changes which have been brought about very largely by a new generation of teachers who had the good fortune to be born late enough to come under the influence of new ideals brought into the Training Colleges in the late 'eighties of last century, when Mr. P. A. Barnett was appointed Principal of the Borough Road Training College.

As Mr. Barnett has recently retired from the service of the Board of Education, it seems a fitting moment to draw public attention to the debt which the nation owes to him for his work, especially for that which he did during the six or seven years immediately prior to his accepting an Inspectorship under the Board of Education. When he went to Borough Road in January, 1889, the College was the only English Training College for men not governed by the Church of England or other religious body. The numbers seeking admission were very large. The students on that account represented a very high average of ability; but as they were going to work in primary schools the spirit and curriculum of the College was conceived on primary school lines. In this respect it was, of course, typical of other similar institutions. The Board of Education prescribed a curriculum which would hardly have inspired a good fourth form in a county Grammar School, and which was little more than mental starvation for able young fellows of 19 or 20, who found themselves compelled to spend two further years upon studies whose range was only slightly extended beyond what they had done as pupil teachers in preparation for the entrance examination. Who that went through it is likely to forget the sickening dullness of the courses in English, arithmetic, history, and geography which were the chief constituents in their academic fare, with a little Euclid and algebra, a little French, a little science, and a little drawing thrown in. To name the subjects is to give no idea of the real nature of the work—a laboured acquisition of fact upon fact, and detail upon detail without a spark of illuminating comment or any effort to make the men realize the meaning of it all. The examination demanded pedantic accuracy of detail, not intelligent grasp, and men were forced to waste themselves upon this type of thoughtless acquisition. Subjects were represented by petty text-books, and neither the lectures nor the college libraries were designed to do anything more than provide a carefully calculated sufficiency of information for the teacher in an elementary school. The college time-

table, which kept the men closely at work from 9 to 1, from 2.30 to 4.30, and from 6 to 9 every day, with a half-holiday on Saturdays, was conceived in a like spirit. When men were not in lectures, they were engaged in private study under rigorous supervision. Such a regime needs no comment. Naturally, the relations between students and staff were often strained almost to breaking point, and discipline was always difficult in spite of the docility of youths whose whole training had given them the habit of obedience.

And in all this, Borough Road was, perhaps, the best representative of a system which broke down most completely there because of the age of the senior staff. Mr. Barnett's appointment opened a new era for the College, which has in its turn profoundly affected the whole conception of what is required in an institution for the training of teachers. His arrival brought with it academic ideals which were till then quite strange to the place. He soon realized that the Teachers' Certificate Examination offered no stimulus to his men, most of whom would have passed it before they entered the College, and, largely at his instance, two great reforms were ultimately accomplished. The Board of Education consented to recognize the examinations of the University of London as equivalent to its own certificate examinations. The recognition was a grudging one, and accompanied by conditions which kept all but the most adventurous spirits from attempting degree work. But it was the beginning of a movement which presently led to the establishment of Day Training Colleges in recognized centres of University teaching. Then followed the notion of examinations equivalent to what was then known as the King's Scholarship Examination, a step which dealt a heavy blow to the unholy scramble for places in Training Colleges, awarded as they were according to position in the scholarship list, and which at the same time brought the Training Colleges into relations with the Secondary Schools of the country. The present Appendices AI and AII to the Regulations for the Training of Teachers show how far the principle has been carried up to the present time.

The old Training College year, which ran from Christmas to Christmas, was changed to the ordinary academic period, and was thus brought into line with that of other higher educational institutions. How much these things have meant for the status of the Training Colleges only those who knew them as they were in the 'eighties can tell.

It was Mr. Barnett's ambition to make the London Training Colleges recognized schools of a reconstituted University of London, and he gave evidence in support of those views before the second Commission (1892-4) appointed to consider the whole question of a teaching University. Here again we have the germinal idea which has developed into an important feature of the educational programme commonly accepted by democratic opinion—that the training of all teachers should be taken over by the Universities.

The leaven of new academic ideals was bound to affect the whole routine of Training College life as then conceived. The barbarous time-tables had to give way before humaner views of adolescent life and possibilities. Mr. Barnett had not been long in the saddle at Borough Road before he abolished afternoon lectures and private study hours in favour of outdoor games. It was this that led him

ultimately to persuade the British and Foreign School Society to consent to leave their historic home in the Borough Road for the suburban attractions of Isleworth, where river and playing fields soon wrought a powerful change in the whole life of the College.

Nothing has so far been said of the internal changes brought about by the new spirit which Mr. Barnett had brought into the college world. The old Borough Road was a barracks without a single attractive internal feature. It was as if the Training College deliberately shut from its purview the comforts and decencies of an ordinary civilized and cultivated life. The new Principal set to work to alter the condition of things which arose out of a mid-nineteenth century idea of a primary schoolmaster's function and place in the world. Again, this new attitude spread through the Training College world. Enormous changes in the every-day life of the modern residential College have resulted, and the nation is getting a type of teacher that is likely to play an increasingly important part in the general elevation of the standard of life of the masses of English men and women.

Of Mr. Barnett's official work since he left Borough Road, except for that part of it which concerns the Training Colleges, we can say nothing. As Staff Inspector of Training Colleges he was in a position actively to further the ideals which he had striven for at the Borough Road. His job was not easy. Old notions die hard, and the idea that it was worth while to spend money on producing gentler and humaner spirits for the work of the elementary schools required tactful presentation to make it generally acceptable. But Mr. Barnett's record in his high office was one of unfailing courtesy. He was always ready to sympathize with difficulties and always keen to see and encourage idealistic effort, but courageous and outspoken when the occasion demanded. He left the Training Colleges better than he found them, and his transference to another branch of the Board's work was a serious loss to those institutions.

A word may be said, finally, of Mr. Barnett's literary work. Probably no man in this country has done more to make secondary schoolmasters think "professionally" than he. His "Common Sense in Education" has been an inspiration to large numbers of teachers, and "Teaching and Organization" was a pioneer effort in the co-operative treatment of the problems it covered which still exerts enormous influence on educational thought and practice.

J. A. G.

CLASSICS, HISTORY, AND THE TRAINING OF REASONING.

BY PROFESSOR C. W. VALENTINE.

I.—IN the defence of the compulsory study of Latin, or Latin and Greek, by all pupils in secondary schools, two lines of argument may be followed. The first lays stress upon the great value of the substance matter of classical literature itself, the second upon the unique mental training given by the study of the classical languages. Generally an advocate of these studies uses both arguments. A few who are familiar with one school of thought in modern psychology abandon the second and rely on the first; but as the value of the literature can only be properly appreciated at a fairly advanced stage, this argument is hardly strong enough to justify the teaching of Latin (or Greek) to the multitude, who will drop it after reaching matriculation standard, or at any rate after a pass course at the university. Accordingly, we find a few writers abandoning the first line of argument and relying entirely on the "mental training" argument, at least as far as the teaching of classics in school is concerned. Canon Lyttleton, when Head of Haileybury College, was one of these. A more recent and most uncompromising upholder of this argument is Mr. Cyril Robinson, of Winchester. In an article entitled "Education in our Public Schools: A Critical Defence of our Present System"¹ Mr. Robinson vigorously supports a curriculum chiefly composed of Latin and Greek for *all* boys up to the age of sixteen.

I propose to take Mr. Robinson's article as a starting point for this paper, partly because it is a good representative of arguments of this type often put forward, and partly because it contains a vigorous statement of an apparently strong point in the argument of the classicists—the value of Latin translation as a mechanism of teaching, and especially as a means of the training of reasoning.

Mr. Robinson enlists sympathy at the outset by taking a broad view of education and making some excellent criticisms of our present system of education and its results. "Until," he writes, "something teaches us (as perhaps this war is teaching us already) to regard England as an integral part of Europe and the world, until we come to desire knowledge for its own sake and not for the reward it brings, and until, above all, there arises in our school an intellectual energy which shall replace the apathy of present days, we shall remain much as we are." This passage might well have been written by a red-hot reformer; and surely it suggests something vitally wrong with the system which produces this apathy. Yet Mr. Robinson defends "the present system"—and that the system of the public schools. He nowhere gives evidence that the "intellectual apathy" is less at the public schools where classical subjects are predominant, than it is at some of our more modern secondary schools. Nor does he look to the classically trained public schoolman for a revival of "the old intellectual keenness which possessed Europe at the Renaissance." "When it comes," he writes, "it will probably come from the class which is at present but half-educated. Already such institutions as the Workers Educational Association present a spectacle of intellectual energy and

¹See "Nineteenth Century and After," June, 1917.

enthusiasm which finds no parallel among our leisured classes." Precisely! And is it not because—as in the case of the Renaissance—a flood of new ideas is offered to minds which are hungry for them. At the Renaissance men worked eagerly at Greek, not for the sake of the mental gymnastic afforded by the complicated rules for conditional clauses, but for the sake of the new thoughts enshrined in that wonderful literature. Mr. Robinson "doubts, however, whether the subject matter of the classics has any real value for boys under sixteen or seventeen" (p. 1324.) Yet, apparently, he hopes to arouse "intellectual enthusiasm" by these means.

In another passage Mr. Robinson writes: "A man must learn to sift evidence. He should, if possible, be widely read and acquainted in a general fashion with the problems which are presented by different subjects"—another excellent passage which one might suspect was leading up to a plea for broadening the basis of public school education. But no. "All this," he continues, "is plainly a matter of training," which appears a harmless if not very helpful saying, until we find that "training" means, in the main, the formal training given by Latin and Greek translation, which according to Mr. Robinson himself gives the boy no *ideas*. Here, as elsewhere, Mr. Robinson underestimates the influence of ideas and knowledge even in mental "training." He assumes, apparently, that exercise in making inferences as to what number and case a noun is in, will necessarily train a boy to make inferences in matters of laws and morals, and that examination of the ends of Latin words to get a clue as to which is the subject of the sentence will inevitably teach him to sift evidence on historical or legal questions. Again, he writes, "We shall make this the principle of our choice that to reason rightly is more than to hold facts, and that the best medium of education will be that which best develops a sound judgment." Judgment on what—pictures, horses, the character of one's acquaintances, the stability of the money market? One wishes one could hear Socrates interrogating Mr. Robinson as to his vague use of terms like "judgment" in a more or less psychological discussion of an educational question. "At such moments," as Mr. Robinson says in another connexion, "we should do well to remember Socrates."

In spite, however, of the fallacies of the faculty psychology which appear in Mr. Robinson's paper, he does at least in his main contention recognize that "reasoning is not all of the same type." There is the mathematical type, and this is unsatisfactory as a means of training, because there is no such certainty as we find in mathematical proof, about the affairs of the commonplace world. "Pure logic will not avail us here." (Yet when we turn to find why Latin and Greek are the best media for the training desired we read that "in Latin and Greek each sentence is built on a foundation of *pure logic*." "If the translator starts by contemplating merely the form, the logical structure of the parts, he will obtain a correct solution.")

Mathematics will not do, argues Mr. Robinson, as the main medium of instruction, for it deals with things and relations so unlike human experiences. Now history deals with these very things themselves. History, however, will not do, it is said, because boys cannot realize the interconnexion of the events of history. "The very notion of causation is not as yet contained in the mind of school boys" (that is up to the age of 16). Mr. Robinson, I think, does not discriminate

sufficiently between different kinds of causes in human affairs. Some ideas of causation develop long before the age of sixteen. Students of early child life, for example, know that the age of five or six is not an uncommon one for boys to insist that God Himself must have had a maker. Of vast complex social movements few boys (of, say, fourteen years) may be able to get a very clear idea; but surely they can of personal motives and of the reasons, especially economic, for the more definite, limited movements in human history.

The chief strength of Mr. Robinson's case lies in his emphasis of the weakness of History, and of the strength of classics, from the point of view of the *mechanism of teaching*. "In a History lesson," he writes, "you can never compel a large group of individuals to form inferences of their own, or if inferences are drawn it is impossible to demonstrate with any approach to precision the truth or falsity of each." Suppose we admit the general truth of this contention, though one wonders whether Mr. Robinson is familiar with some of the newer methods in the teaching of History (see for example the Problem Method as discussed by Mr. Keatinge in "Studies in the Teaching of History"). The question then becomes one of the relative values of (i) the repetition of certain mental acts such as are involved in translating, which can be constantly checked, if not "compelled" as Mr. Robinson puts it, and (ii) the encouragement and stimulation of thinking about such questions as History deals with, even if such thinking cannot be compelled or even checked at every instant.

Mr. Robinson seems to take the view that the important thing is to "keep a boy at it." For he thinks the subject matter of the classics cannot appeal to boys under sixteen or seventeen, and he describes the kind of reasoning involved in doing Latin as "trifling inferences." Some passages in his paper, however, seem to put forward a different view. Thus he maintains that by translating from another language a boy "learns, if he is rightly taught, the identity between ideas and things, between words and realities." The boy's common-sense knowledge of realities is a check upon his interpretation of the foreign words. In this guidance of translation by context or subject matter (which by the way is a departure from that attention to mere *form* of language which Mr. Robinson so commended before) a boy is compelled to make a synthesis of his own. "No small effort is required to bring together the many different sentences which go to make up the description of a battle." "If a boy translates 'the general went forward as his reinforcements had not arrived,' when he should have said 'although,' he can be shown his error in a twinkling, because he thoroughly understands the right relations." (The relation is one of *causation*, by the way; the boy perceives the absence of and impossibility of the causing of (a) by (b) and hence the absurdity of "as.")

But Mr. Robinson cannot have it both ways. If the boy can have errors put right "in a twinkling" because he thoroughly understands the ideas involved, how can the handling of such simple ideas be of much training value? If on the other hand the ideas are difficult, may we not have the same vagueness and inconclusiveness which we are said to find in History teaching? It is then really only in reference to the rules of syntax and accident that definiteness and speed can be claimed.

Again, Mr. Robinson argues that ideas which would be very easy in English are difficult to deal with in a foreign language. Surely there is

a confusion here between the difficulty of the vocabulary and syntax of the foreign language, on the one hand, and the difficulty of the ideas as such, on the other. Grappling with the foreign language can scarcely add to the ease of dealing with such simple ideas. It is true that the mastery of unfamiliar or profound ideas in another language may bring more attention to them, necessitate a more thorough grasp of their meaning, and lead to a new point of view, and this, no doubt, is one reason for the excellent results which follow a classical education when carried to an advanced stage, for innumerable varied and profound ideas are met with in the classical literatures. This advantage, however, would, it seems to me, only appear at an advanced stage when the language difficulties are relatively slight, and when the substance matter is the central point of interest. It is difficult to discover any essential element of training of this type in such an exercise as translation at *early* stages, which would not be better given by the extended study of more difficult subject matter in English¹.

In conclusion, I would urge that the fundamental error in the type of argument put forward by Mr. Robinson and of some other classical teachers, is in the implied suggestion that the main object of education is to keep the boys perpetually "at tension"—to force them to think, with relatively little attention to the subject matter of that thinking and its relation to the permanent interests of the pupils. The main object should rather be to stimulate thought so that it will continue to germinate of itself. Keen stimulus is, no doubt, often needed, but a real felt need of an idea is the genuine stimulus, such as can frequently be induced by good teaching in history, geography and science, as well as in literature. No doubt a stimulus is also afforded by such a need as is felt in attempting to construe a passage in Latin. But Latin translation, at the early stage at least, chiefly stimulates thought about syntax and accidence, which is of little value except for its own immediate object, namely, to translate the passage, or for advancement in the knowledge of such syntax and accidence. In so far as the repeated efforts to think are successful they may improve the capacity for volitional attention, and I am not concerned to deny that there may also be other ways in which benefit may be derived which may show itself in other kinds of intellectual activities. But if we are going to take some of our pupils through only an elementary course of Latin, why should we not get the same stimulus and training *in material which is of itself valuable throughout*, for example History, in which any and every idea may be a germ centre for further thought, which may give at the same time valuable knowledge, and in which the type of thinking will be more like that involved in after life than is that which is concerned with the accidence and syntax of Latin?

Mr. Robinson, I suppose, would reply, "Because the convenient mechanism cannot be found." In Latin, we know if a boy is thinking. One word involves this thinking, says Mr. Robinson, this slow, steady, logic-grinding process. It might, perhaps, also be urged that in reading History the thinking is largely done for a boy, and that even the points about which serious thinking on his part is needed, are separated by long passages in which he merely has to be receptive. Now it must be admitted that it is desirable to find a place in school work at times for such constant and definite checking of thought as is given by the

¹I have discussed this question more fully in "An enquiry into the value of the study of Latin and Greek," Article II, *The School World*, February, 1918.

translation lesson, for a constant stimulus and demand for thought combined with an easy and rapid method of checking it, and for some device for encouraging or even compelling attention to the inter-relation of sentences. Of course, the translation of any foreign language, modern as well as classical, provides such a mechanism¹; but is it impossible to introduce something like it into history and geography, especially seeing that most pupils in the elementary schools study no foreign language at all?

It is in order to suggest that this is possible that I shall describe in the second part of this article an experiment with a supplementary method in the teaching of history, geography, and other school subjects, not by any means a method which would affect the main lines of teaching in such subjects, but which might perhaps serve as an occasional supplement to the ordinary lesson.

II.—It seems to me possible that we may obtain such a method as we seek by the application of a mental test already known to educational psychologists, namely, the Ebbinghaus Combination or Completion test. That test has already been used as a test of general intelligence, but it might, I think, be used when properly adapted as a method of training as well as of testing reasoning and careful thought. Briefly the test when adapted is as follows:—A paragraph in prose is selected, or prepared, in which some reasoning is involved, say on historical affairs or in Geography or Economics. Important words are omitted at certain points, in such a way that careful thought and the apprehension of the general argument of the passage will enable the pupil to fill in the blanks correctly. Below is given an example, specially written for the purpose, of a passage dealing with the Renaissance. It will be noted that many of the sentences are logically connected. If a boy follows the reasoning, supplying some of the connecting links himself, he can fill in the missing words. Careless thought may, perhaps, lead to the filling in of the blanks grammatically, but often not so as to make completely good sense. For the correct filling in of all the blanks the meaning of the passage must be fully grasped. In some cases, what comes later helps to determine what word should be supplied in an earlier blank. I should explain that the passage is supposed to follow a similar one dealing with the decline of Feudalism. More than one word is necessary to fill in some of the blanks:—

THE RENAISSANCE AND THE NEW LEARNING.

The Tudor period was a time of great discovery not only of new lands, but of new facts about the universe and of new ideas in the literatures of ancient Greece and Rome. The capture of Constantinople by the Turks in 1453 ¹ the many Greek scholars who were there to Italy. Hence followed a great ² in the study of Greek literature in Italy, and this gradually spread to other countries in Western Europe.

There followed a great ³ in men's ways of thinking. In the Middle Ages learning had been largely confined to the monks and priests, and they had studied chiefly theology. Now, however,

¹I do not discuss Mr. Robinson's comparison of the educational value of modern languages as compared with the classical, for this has been ably done already by Mr. Clouesley Brereton in the "Nineteenth Century and After," April, 1918.

there was a great spread of learning among the ⁴, and instead of theology the subject of chief interest was ⁵ himself and the wonderful universe in which he lives.

We saw that with the ⁶ of Feudalism the middle classes became more ⁷ Similarly the spread of ⁸ among laymen made them less dependent upon their ⁹ overlords.

In England this revival of learning almost coincided with the growth of great discontent with the Church, and helped ¹⁰ the Reformation. The study of Greek was doubly welcome to ¹¹ men, for it was the language of the New Testament. A new interest in the Bible led men to look there for ¹² about religion instead of, or ¹³ to the Church.

The invention of printing was another event which ¹⁴ the spread of the new learning, because ¹⁵ could now be distributed. The ¹⁶ of new parts of the world and of new ideas had a very ¹⁷ on the minds of men, so that it seemed as though new energies were surging up in mankind. It may help us to understand this if we remember how ¹⁸ it often is to begin the study of an entirely new subject.

The Renaissance, then, was a time of the ¹⁹ of man from much ignorance, and from the ²⁰ of his feudal overlords. It was a time of the assertion of the power of his reason against the ²¹ of his ecclesiastical overlords. Finally, it was a time of increase of his own power over Nature, as shown in the advance of ²² and in the ²³ of continents.

Tests of this type I have found to be done fairly well by the better boys in a class of the average age of fourteen, and by most of the girls in a class of the average age of fifteen. For these pupils the test served primarily as a stimulus to fairly hard thinking, partly in reference to the interconnexion of sentences and ideas, involving a sort of logic of language, and partly in reference to the subject matter of the passage. The test may be written on the board, or lithograph copies may be distributed. The pupils merely have to write down the number of the blank and the word they think appropriate. About fifteen or twenty minutes were allowed. By older pupils this test would doubtless be done much more quickly.

Such a device might be used (1) as a *test* of the understanding of the rational connexions of events in a period of history already studied, to be done, say, at the end of a lesson or for homework; (2) as a *method of instruction*, the passage being construed orally in class, giving at the same time some revision of the study of the affairs discussed and an exercise in reasoning of this type.

I would suggest that such a plan would at least do all that Mr. Robinson claims for Latin translation in the following passages:—"In classics a whole form can be kept perpetually at tension. If one boy is set to construe, the rest must follow his efforts in a critical fashion. If a question is put, a clear, straightforward answer should be formed in every mind before the demand is made on one special individual. And often enough a word or two suffices to demonstrate the rightness or wrongness of the answer." "And so the lesson goes on, a hundred

simple inferences are made and instantly corrected. Every one of them is a lesson in logic, and, furthermore, every one of them deals not with matters which are utterly divorced from life, like the abstractions of mathematics, but with real living ideas."

Indeed, in this last respect the completion test would be much superior to Latin translation as an exercise. For Mr. Robinson's statement that in the translation all the inferences deal with real living ideas, involves a confusion of thought. It is true that the Latin sentences represent living ideas. But many, if not most, of the school-boys' inferences are not about these ideas as such, but are somewhat as follows:—"Capiunt is 3rd plural, so the subject is plural; *milites* is plural, so it is the subject. Is there any word agreeing with *milites*?" The inferences are largely questions of formal grammar, *as remote from real life as mathematics*. Can it be said that such reflection can compare in educative value with some of the reasoning involved in the completion test given above, which might be multiplied indefinitely in History, Geography, Economics, and Natural Science if needed?

If in translating Latin or Greek attention could be largely paid, even at early stages, to the sense of the passage, the above criticism as to the nature of the reasoning involved would not be so justified, though even then many of the inferences would be what Mr. Robinson himself calls them—"trifling inferences." But Mr. Robinson writes as follows as to the proper mode of construing, and of course it would be endorsed by all classical teachers:—"If the translator starts by merely contemplating the form, the logical structure of the parts, he will obtain a correct solution. If he links the words at haphazard according to some vague notion of the sense, he will sooner or later fall into a blunder." The result of the reasoning, then, which is involved in junior and middle form work in classics must bear reference largely to the syntax and accident. In History, Geography, and Economics it is far otherwise. Why cannot we give our pupils their needed exercise in reasoning in such subjects so near to real life? Mr. Robinson, as I have already suggested, would presumably reply, "Because the convenient mechanism cannot be found. In Latin the translation of a single word gives us a clue as to whether a boy is thinking." It is to supply the place of such a mechanism, in so far as it is needed, that I suggest the use of the adapted completion test, for which passages may be selected or specially written so as to involve thinking about whatever topics are thought desirable.

No doubt the pupil's mind will sometimes "jump" to the right word, just as he often "guesses" in translation. But the speed at which pupils of the age mentioned go shows that this is not usually so. The following may, I think, be taken as typical of the kind of thinking which, consciously or half subconsciously, will normally take place if the blanks in the above passage are to be filled in correctly. What effect was the capture of Constantinople by the Turks likely to have on the Greek scholars there? What effect was the increased study of Greek literature likely to have on men's way of thinking? "In the Middle Ages learning had been largely confined to the monks and priests, and they had chiefly studied theology. Now *however*—" This "*however*," like the Latin "*tamen*," gives the clue to what is to follow—something contrasted

with the preceding. Sensitiveness to the guidance of such connecting words is a thing which is quite likely to be developed by the translation of Latin and Greek. There seems no reason why it should not be developed also by the reading of difficult substance matter in English. In the completion test, however, we have a chance of easily checking the extent to which the pupil notes its significance. The girl who filled in blank 4 with the word *good* (instead of *laymen*) could be shown that she was quite insensitive to the significance of "however"—after it had been ascertained that she had no intention of contrasting the "priests" and the "good." The filling in of blanks 6 and 7 (the *decline* of Feudalism) requires the use of a fact already learned in the previous test, if not before. Blank 8 (*learning*) can be filled by keeping in mind what has gone before. To fill in 9 (*ecclesiastical* or *spiritual*) the pupil must reflect that the spread of learning among the laymen would make them less dependent on the priest; the cue is given by the suggestion that it is *qua laymen* they are affected. This is a difficult blank, but it was done by several of the fifteen-year-old girls after their first attempt, *feudal*, had been rejected. If the youth does not know that the revival of learning helped to *bring about* (10) the Reformation he can infer blank 10 from what follows, when the effect of the new interest in the study of the Bible is shown. The fact that Greek was the language of the New Testament made it specially welcome naturally to *religious* (11) men or to *church* men. Weak students, ignoring the significance of "for it was the language of the New Testament," put "scholarly." One optimist put "all" men.

Most infer that the invention of printing enabled *more books* (15) to be distributed; and from this fact it can be inferred that the invention of printing *helped* (14) the spread of the new learning. Those girls who wrote "because *New Testaments* (or *Prayer Books*) could now be distributed," show that, for the moment at least, their idea of the new learning is much too narrow. More probably they are guilty of loose thinking, possibly due to lack of attention to the causal-conjunction "because." This can readily be pointed out.

In conclusion, I want to emphasize the fact that not for one moment is it suggested that such tests should occupy anything more than a small proportion of the time available for the teaching of such subjects as History and Geography. Good teachers in these subjects can do far more than Mr. Robinson seems to imagine possible to ensure keen thinking by all the class, even in a lesson of the lecture type with oral questions. But the completion test, I would suggest, might form a useful means of checking the extent of the understanding of the reasoned connexions involved in such subjects, as well as of the thorough grasp of historical facts and processes; further, it could be used thus upon all the class at the same time, and it has the merit that the work can be easily marked in written work or readily checked in oral work.

We seem then to have here a means by which, in the study of English itself, we might encourage, or even "compel," that close attention to the inter-relation of sentences which is exercised in the translation of a foreign language, and which may form a convenient method of stimulating thought and reasoning about human affairs, and more particularly of checking that thought with ease and rapidity.

The test may also serve to stimulate reflection on specific points to which it is desired to call attention, while unexpected misunderstandings of historical events are often betrayed by it.

Incidentally, it may often serve as an exercise in the English language itself. Some erroneous answers given for the blanks started some most useful discussions in reference to the use of words or the the form of sentences.

It must, however, be admitted that suitable tests are far from easy to make, and doubtless only by very careful thought and much revision after some experience will the most suitable passages and omissions be evolved. I should now omit one or two of the blanks in the above passage as being of little value for our purpose.

In summing up this article, it should be made clear that nothing that has been said is intended to minimize the great value of a thorough study of Latin and Greek literature. The point at issue is whether the value of Latin merely as a means of "training the reasoning" is sufficient justification for compelling boys and girls with little or no linguistic ability to spend two, three, or four years at it, when admittedly this will not bring them to a stage at which they can enjoy Latin literature as literature. The kind of reasoning mainly involved in Latin translation at an elementary stage discredits it as a means of giving a training in reasoning on questions of living, permanent interest. If the excellence of Latin translation as a mechanism in the hands of the teacher can be imitated, even imperfectly, in the teaching of such subjects as History and Geography and perhaps Economics (apart from the somewhat similar "mechanism" provided by a modern language, if such be studied), the necessity for Latin as a mental gymnastic for all will be even more questionable, while these subjects may gain one element of strength by adding a type of exercise and training in which at present they are relatively weak.

The writer hopes to publish a collection of sample tests in History, and also in Geography, if further experience confirms his idea as to their possible utility. In the meantime he will be very grateful for criticisms or suggestions from any teachers who may experiment with tests of this type.

Note on Formal Training.

As Mr. Robinson does, in his main thesis, recognize that reasoning is not all of the same type, I have felt it unnecessary to discuss at length the vexed question of formal training in the present instance. For granting that there is such a thing as a general training of reasoning through one medium, it is not essential to the position taken up by Mr. Robinson and most classicists to hold that any one training medium is as good as another for any given purpose. Indeed, the essence of their position is that reflection and reasoning on matters *humane* are the best preparation for thinking on human affairs in after life. It must, then, be admitted by the classicists that the nearer we can get in our reason-training medium and its appropriate method of reasoning, to that kind of material (and method) about which (or by which) it is most desirable that capacity to reason should be possessed in later life, the better our training will be.

One point, however, in reference to a general training of reasoning is relevant. In another article¹ I have tried to show that even

¹ "Volitional Attention and its Training," *Mind*, January, 1917.

when a general training of some mental capacity can be given through one medium, such "transference" of training effects is much more likely to occur in the case of the most intelligent students and of those who have special capacity for the subject studied, than in the case of the dull or average students. "This fits in with the fact that it is a characteristic of high intelligence to see relationships . . . which are not noticed by the less intelligent. I suspect that a similar thing would be found to be true in the case of other mental capacities [besides volitional attention], namely, that a specific training has a *general* effect only in the case of the more intelligent persons. It is regrettable that experimentalists in dealing with the question of formal training have overlooked this important point of individual variation. It may be that when a slight, almost negligible, transference of training effect is shown by a large group of persons, analysis would reveal that a few of the most intelligent have shown considerable transference of improvement as a result of the specialized training, but that the rest of the persons have shown none at all, thus giving a negligible result on the average."

If, then, it be true that it is the able student who shows most transference of training, and that the average or dull one shows relatively little, it is specially important for the average or dull pupils that their training should be as direct as possible. Thus, while in the case of the select few intelligent linguists, the general training given in reasoning through Latin and Greek translation might be very considerable, in the case of others it might be very small. Here again is an argument in favour of classics for the few and selected rather than for all—Mr. Robinson's desideratum.

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CHILDREN AND THE "UNSEEN."

By LILIAN DALY, B.A., Government Training College, Ceylon.

THE problem of Religious Education comes as a very real problem at present. Faced as we are with the elemental realities of this life, we are driven to question the realities beyond the limits of time and of sense. Not so much to question the existence of such realities as to endeavour to ascertain some truth about the nature of them.

The December (1917) number of this *Journal* contained an article on "The Child and the Things that are not Seen." The writer faced many questions connected with the problem of religious training of children, and I feel, with her, that it is wise to delay attempts at answers until we have taken trouble to find out, by research, the extent of the problem before us. So, in what follows, my chief purpose is to offer experiences of childish thought that have come in my way, in the hope that they may perhaps contribute light on the methods of teaching in the future.

Miss Morton suggests that the child is not a materialist. I think this view needs some amplification. If we take her words in her own meaning—"They have the gift of imagination, the spirit of adventure,

the power of adaptation, the trustfulness which carries us over to the unseen and unknown"—we would agree. But the following incidents lead me to think that there is a sense in which the child of early years is indeed limited to the material universe.

(a) A little girl of some six years had her attention attracted to a passing funeral. She asked her father, who was with her, what was in the box. He replied, "A person's body." She then asked if she would ever be put into a box. He said, "No, only your bones will: you will be in Heaven." And for many months the source of puzzle to her mind was to picture herself in Heaven "without her bones."

(b) A boy, about seven years, expressed his fear of burial—"he would get sand in his eyes."

(c) Another boy of similar age remarked: "If my father died, I'd dig him up!"

In the case of (a) there was belief in the unseen. Heaven was as real as America or any other distant unseen place, and *just as material* in conception, but there was a total failure to grasp the notion of the *immaterial*. In (a), as in (b) and (c), the "person" was undistinguishable in thought from their bodily organism.

Again, I am inclined to think that to a young child God is *not* a Spirit, simply because the young child cannot grasp such a notion. God is accepted in more or less the same sense as other persons unseen, because at a distance, e.g., a cousin in Australia. God is someone who lives in Heaven, i.e., lives somewhere far off. Children are content not to define their ideas of Him, but as far as it goes it is material. It may be that God is a person, "very old" or "very big;" or, as one child thought, someone "who had no one to tell Him not to do things," or who had "very loud ears," so that he could hear prayers. The query of a child of nine years seems to me to point to the same conclusion: "Who minded the angels in Heaven when God was being Jesus on the earth?"

And this query brings us to another consideration urged by Miss Morton, i.e., the difficulties that orthodox dogmatic teaching may provide by placing before children aspects of truth to which their minds have not yet grown.

On this point I take the liberty of quoting from my own experience as a child—a very ordinary child, with no desire to indulge in religious meditation unless obliged to do so by Church or Sunday School. I had, I suppose, merely the normally active mind of a healthy child interested in whatever my attention was directed to. I had two Gods. They existed side by side in my mind for many years without my realizing them as two. (1) I learnt of God from my father, as making, and taking care of, the world and the things and people in it. I knew my father took care of my mother and all of us. The idea of 'fathers' needing to be taken care of struck me occasionally. It presented a certain humour to my mind, but occasioned no special difficulty. I further learnt that because God cared very much he had to punish people to make them do right. (2) Then I had a "Sunday" God, gathered from what of sermons and Sunday School lessons I took in; a God out of whose sight one could never get, a sort of Detective to be kept conciliated by due toll of formula, e.g., prayers said night and

morning, so much Bible read every day, going to church regularly. I was rather afraid of Him, i.e., of His unlimited power, and the impossibility of getting out of His reach. If you went up to Heaven He was there, if you went down to hell He was there—so the preacher said—and I knew everyone *must* die, so I couldn't hope to stay in this world. I used to lie awake at night frightened at the thought of death.

I frankly disliked Him, in company with a pious maiden aunt who once told tales of me from information gained by spying from behind a curtain, and for which she was ever after despised, and also, I am afraid, defied when known to be on the watch! Such were my religious impressions up to nine or ten years. By fourteen, my Gods became more *realized as two*, and I gradually dropped the one and fell back on the other. And I owe it to my father that my adolescence years were not a period of angry agnosticism, because I could not accept as God a Being who was, as I gathered from orthodox teaching, morally below human beings who appealed to me as wise and good. The big trouble that faced me about this time was: "Is a wrong thing right when God does it?" e.g., It is wrong to tempt others to sin. Why did God tempt Abraham? I do not mean that this question defined itself to my mind all at once. I do mean that in a vague, unformulated way it hovered over my thought for some of my life, and gave rise to very real nervous worry. I could not see how to be religious and honest. God required to be loved. I couldn't love God as I understood Him from 'religious' people. The notion of Justice and the notion of God seemed irreconcilable, and Justice made very strong appeal.

Another way in which orthodox teaching may defeat its own ends is somewhat different. A boy of seventeen, who after Confirmation stumbled on some Agnostic literature, said to me: "I don't think it is fair to make fellows say they believe what they *never* had the chance of not believing!" I think this bears testimony to Miss Morton's contention that we should share with the young the attitude of the discoverer. Truth is so immensely bigger than man's mind that, it seems to me, we should convey a more adequate idea of it if we were more ready to admit this, than to pretend, or even worse to think, that we know all about it.

It would seem that the two great channels for the discovery of religious truth are things and people.

I venture to think that for the little child "things" may be the safest approach. Things don't dogmatize; they simply *are*. And so he is left free to understand in his own way, and at his *own rate*. He plants a bulb. It grows. The growth may be due to the sun and the water that he secures for it. But one day he plants a dead bulb. No amount of sun and water avails. What then? The child is confronted with the *need* for something more. And to face the worst issue—What if a child goes through life needing a God he never discovers? Assuming our belief in the Christian doctrine of immortality, I have no hesitation in believing that a man who goes through this life seeking for a God he cannot find may be a religious man, whereas a man who accepts for his God something that does not satisfy his own best instincts cannot be anything but a degraded being. I believed this in England. I feel more convinced of it in Ceylon.

But while Nature may be the safest approach, Nature, as we know, cannot, by itself, reveal to human beings their God in the fullest sense of the term. In Yeats's poem, "The Indian on God," we learn how each creature imagines God as a glorified form of its own kind. To the lotus, God is a giant lotus; to the peacock, God is a great peacock. They could not conceive of God in higher terms than the limits of their own nature would allow. So with us. God for a human being must be at least a "person," as we have learnt to understand that term from life, and from the revelation through Jesus Christ. Hence children must learn of God from persons. And here again experience has made me question accepted methods of religious training.

A child, whose experience of a father was that of a drunken brute from whose home-coming wife and children had to seek protection, elected to pray, "Our *Brother*, which art in Heaven." It was the child's own idea. It may be that the hymn, "God, who made the daisies," may be fraught with less risk to faith than "Our Father," given certain environment. The curious remark of a small boy struggling with a hat which *would* blow off, "I wish they'd keep the trees quiet, and then it wouldn't wind so much!" shows, I think, that the conception of a Final Personal Cause comes natural, our task being to see that we do not create false impressions of the *character* of that Cause.

To this end it might be wiser to give *better knowledge* of Bible stories, and *less adult comment* on them. The Bible, as we know, reveals God through His deeds, and through the deeds of men "after His own heart." Take the story of Gideon. If we supply adequate geographical detail, Gideon stands out as showing, by his method of selection of men, a capable general. If we do not do this, we see nothing but a somewhat superstitious man basing his choice on a chance happening. If we tell the story of Joseph to children of any age, let us wait for their comment. At one age they may like the story for the incident of the "coat of many colours." At another age for the triumph of Joseph as a rich ruler receiving his poor brethren. It may rank in their interest beside Cinderella's triumph over her sisters. At a later age, the injustice of Jacob's favouritism, with its logical punishment, will interest them. Let us wait for this spiritual development. By thus allowing children to select points of interest in such stories we secure (1) that they take out of a story what they can grasp; (2) that such stories, instead of becoming monotonous repetitions year by year, provide in themselves fresh interests for understandings that are growing "in wisdom and stature." An old story in a new light compasses the attractions, at once, of familiarity and novelty.

In conclusion, I would note three points that might be more meditated on by us teachers.

- (1) To make children precocious is not to make them wise.
- (2) To give them our conclusions is not to train their reasoning powers.
- (3) To teach them beliefs by heart is not to give them a faith of their own. In Kingsley's words: "I don't want to possess a belief; I want a belief that will possess me." Surely the war is bringing the truth of this home to us as the essential aim and end of all teaching of Religion.

AN EXPERIMENTAL STUDY OF THE DIFFERENT METHODS OF SUBTRACTION.

By WILLIAM W. McCLELLAND, M.A., B.Sc., B.Ed.

IN the controversy regarding the methods of Equal Addition and Decomposition it is frequently taken for granted that if one of the methods can be shown to be the more logical and the more easily understood by young children, the decision must be in favour of that method. But when we consider that very early in the child's school career subtraction becomes a partly mechanical process, in which the reasons for the various steps do not arise, it may be held that it is of more importance to find out which method produces the quickest and most accurate work. To investigate this question the methods of subtraction of 143 pupils of the same class were examined, and comparison was instituted on the basis of set tests, which in the case of 70 of the pupils were continued at weekly intervals for a period of 20 weeks. The pupils belonged to the first year in the Intermediate School, the ages being about $12\frac{1}{2}$ to $13\frac{1}{2}$ years.

I.—Methods of Subtraction.

The subjects were taken individually and questioned to find whether they used the method of Equal Addition or Decomposition, and also what form of inner or partly articulated speech was adopted. Care was taken to ensure that they told what they actually said in practice, and not what they would say in oral work in the class. Further, in all cases where the form of speech was lengthy or in any way peculiar, the inquiry was made on at least two occasions, with an interval of a few months between. The numbers using each method were found to be as follows:—

TABLE I.

Method	Number of Subjects		
	Boys	Girls	Total
Equal Addition... ..	33	30	63
Decomposition	41	39	80
Total	74	69	143

As regards the form of speech used, a striking variety of method was found, and the following is an example of the apparently unnecessary steps which many of the subjects inserted. In performing the subtraction $\frac{152}{73}$ the pupil in question proceeded as follows:—

“3 from 2 I cannot; add 10.

“3 from 12 leaves 9.

"Did I carry? Yes. I must pay back.
 "7 and 1 's 8. 8 from 5 I cannot," and so on.

Another subject regularly inserted the sentence, "You borrowed and you must pay back," while many used the method of first subtracting from 10 and then adding on the residue. This led to a very clumsy procedure, of which the following is an example:—

"3 from 2 I cannot; take a 10.
 "3 from 10—7; 7 and 2—9," and so on.

The simplest procedure found was:—

"3 from 12—9; 8 from 15—7," and so on.

One would expect that the insertion of a somewhat elaborate conversation into the steps of the subtraction would be harmful to the speed. On the other hand, the teachers who use such methods might contend that an increase in accuracy might be expected by making sure that the pupil has to think in each case whether carrying is necessary. Of the 143 pupils examined, 34, or 24 per cent, put in unnecessary steps, and a comparison between them and the others shows that they were both slower and less accurate. Their average speed was 4.1 per cent less than the average, while their average percentage error was 9.0 as compared with 8.4. The conclusion to which this result points is that teachers in the junior classes should gradually accustom their pupils to leave out all unnecessary steps, and thus ensure that none of them enters the senior classes with a clumsy and retarding form of speech.

The speech was not in all cases "inner speech," but was often carried on in a subdued whisper. All varieties were found, from counting in full in a whisper, through varying degrees of articulatory movement, to completely inner speech with no lip movements at all. It was noticeable, also, that as the tests went on from week to week the audible speech diminished, as did the frequency and amount of the lip movements.

II.—Comparison of Equal Addition and Decomposition.

To compare the methods of Equal Addition and Decomposition as practical methods, sheets for continuous subtraction were cyclostyled. The difficulty was kept as uniform as possible, and carrying was necessary in every case. Uniformity in the conditions of the tests was secured by setting them at the same time on the same day of the week in all cases, and by always using the same wording in giving the instructions. A practice trial for two minutes was given three days before the actual test. In the case of the repeated tests the duration of each test was ten minutes, and with the others, five minutes. In giving the instructions in such tests, the result has been found to be largely dependent on whether speed or accuracy is emphasized, and to preserve a balance between them the form adopted was, "Subtract as quickly as you can without making mistakes." Speed was measured by the number of columns subtracted in ten minutes, and accuracy by the percentage error. The individual results of the tests were not intimated to the pupils, and in this way complications due to emulation were excluded. The results for the two methods as regards speed are given in the following table:—

TABLE II.

Method	Columns Subtracted in 10 Mins.		
	Boys	Girls	All Subjects
Equal Addition... ..	163	158	161
Decomposition	135	132	134
Both Methods	148	144	146

It thus appears that the method of Equal Addition is clearly superior in speed, being about 20 per cent better than the method of Decomposition. That this result should be accidental is rendered unlikely by the facts that the number of subjects is reasonably large, and that it comes out uniformly in the case of the boys and girls separately, not only for the whole number of subjects but for each class.

A similar comparison with regard to accuracy gives the following result:—

TABLE III.

Method	Percentage Error		
	Boys	Girls	All Subjects
Equal Addition... ..	7.9	5.3	6.7
Decomposition	10.3	9.0	9.7
Both Methods	9.2	7.4	8.4

Here again the result tells in favour of the method of Equal Addition. The difference in percentage error is considerable, and boys and girls separately show the same result.

To compare the effect of practice on the two methods, the tests were repeated with two of the classes. On alternate weeks the pupils had to subtract the upper line from the lower, the sheets being changed accordingly. In the meantime, however, only the ordinary subtraction tests are considered. The following graphs indicate the result obtained.

A rather curious result thus comes to light, and may afford some satisfaction to the advocates of the method of Decomposition. The subjects who use that method gradually overtake the others, and ultimately, at the 10th test, are found to be considerably in advance. On plotting separate graphs for boys and girls the same effect is found in each case. While the numbers of subjects are rather small, they are sufficient to indicate that this point is one which it might be worth while to follow up. Even if substantiated, however, it has to be noted that under ordinary school conditions pupils do not have such an amount of systematic practice in subtraction, and consequently it is the results of the early tests which have most significance. It should be

mentioned with reference to the graphs that the slight drop in the 5th test may be due to the Christmas holidays intervening between the 4th and 5th tests.

Until the superiority in speed and accuracy of the method of Equal Addition is demonstrated by further work, speculation as to possible reasons for the difference is largely out of place. The following considerations are, however, suggested by the results indicated in Tables II and III and Figure 1. If we consider the processes which take place in subtracting in a problem like $\frac{152}{73}$, it seems probable that in both methods a beginner, after taking 3 from 12 will look next at the 7. In the method of Equal Addition, he adds 1 to the 7 at once and subtracts from the 15, of which the 5 is now before his eyes. In the method of Decomposition, however, he has to look at the 7, and then, keeping the 7 in his mind, subtract 1 from the 5. He then takes 7 from 14, while looking at the 5. The method of Equal Addition would therefore seem

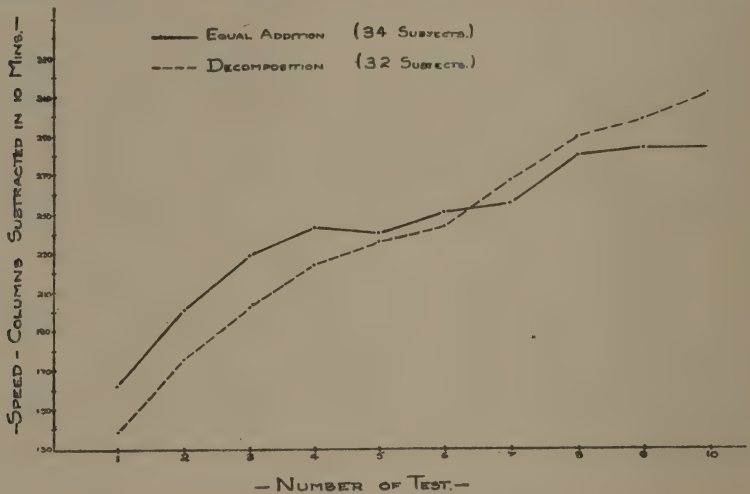


Fig. 1.

Effect of Practice on Methods of Equal Addition and Decomposition.

to have two advantages. In the first place, in the carrying, the 1 is added without holding another number in the mind at the same time. In the second place, in the actual subtraction, one of the numbers is under the eye, while in the method of Decomposition neither of the numbers is being looked at. As proficiency increases, however, the steps run into each other and the column is envisaged as a whole and at a glance, in each method. The advantage in favour of the Equal Addition method would thus tend to diminish. If such considerations are of any significance (and they accord with the foregoing results), some additional light would be thrown on the subject by a comparison of the speeds of the two methods in progressively higher classes.

Similar curves were plotted for accuracy, and the result was that the two curves remained more or less parallel. The percentage error in both cases decreased till the 6th and 7th tests, and then rose till at the 10th test it was as high as at the beginning. In this connexion it is of interest to compare Thorndike's statement: "Now it is known from the results of other workers that in repeated tests with such simple

additions and multiplications, a child tends to work more and more rapidly at the cost of accuracy."¹ A classification of the accuracy curves hardly bears this out in the case of subtraction.

TABLE IV.

Effect of Repeated Tests on Accuracy	Number of Cases		
	Boys	Girls	All Subjects
Increase in Percentage Error... ..	9	4	13
Decrease in Percentage Error	11	6	17
Percentage Error Constant	19	20	39
Totals	39	30	69

The general tendency seems rather to be that the accuracy remains constant. In a number of cases the percentage error fell rapidly in the first two or three tests and then remained steady, showing that the results of the first few tests often do not represent the subject's ultimate accuracy. This is important in view of the fact that much pedagogical work has been confined to one or two tests.

The tests in which the upper line had to be subtracted from the lower, allow a comparison to be made between the two methods as regards adaptability to different conditions. To get a rough measure of this adaptability with regard to speed, the difference between the scores in the first tests of each type of subtraction was used as a basis. The differences were reduced to a percentage of the score in the ordinary type, and the algebraic sum of these percentage differences, divided by the number of subjects, gave the average percentage increase or decrease. The fact that in most cases the score in the new type was higher than in the ordinary type, shows that we have here a practice effect as well. A glance at the curves in Figure 1, however, shows that at first there was little difference in the effect of practice on the two methods. The following results were obtained:—

TABLE V.

Method	Adaptability (Change in Speed in Inverted Subtraction)		
	Boys	Girls	All Subjects
Equal Addition ...	12·6% increase	10·5% increase	11·6% increase
Decomposition ...	7·9% increase	1·0% decrease	4·5% increase
Both Methods ...	10·1% increase	5·5% increase	8·1% increase

Once more the method of Equal Addition comes out to be superior and the result is clear in boys and girls separately.

¹ Thorndike, *Educational Psychology* (Briefer Course), p. 308.

A similar comparison was made of the two methods as regards adaptability in accuracy, and the result was that there was an increase of 3.0 per cent in the percentage error in both cases.

The complete result of the comparison of the two methods may thus be summarized by saying that the method of Equal Addition appears superior in speed, accuracy, and adaptability to new conditions, while the method of Decomposition is superior in speed after long practice.

III.—Sex Differences in Subtraction.

As regards sex differences, Tables II—V permit of a comparison being made between boys and girls as regards several aspects of one of the elementary arithmetical processes. The boys are slightly quicker but less accurate than the girls, and have a greater capacity for adapting to new conditions. The difference in speed, however, is small, and in this connexion reference may be made to the conflicting results obtained on this subject by different investigators.¹ On plotting curves for boys and girls separately the difference in speed is found to increase.

IV.—Other Practice Effects.

The results in the repeated tests provide a partial answer to a question raised in a recent article by Prof. J. A. Green "as to what point continued practice, say at weekly intervals, might cease to produce observable improvement."² Curves were plotted for each of the pupils, and among those who showed any improvement at all, none had reached a maximum. The following is a rough classification:—

TABLE VI.

Type of Practice Effect	Number of Cases		
	Boys	Girls	All Subjects
No Falling off in Improvement	30	18	48
Improvement Decreasing but Maximum not Reached ...	6	7	13
No Improvement	2	5	7
Retrogression	1	0	1
Totals	39	30	69

As there was so little difference between the two types of subtraction used, the conclusion seems to be that 20 10-minute tests at weekly intervals are not sufficient to allow the practice effect to wear off.

When it is considered that the subjects had been subtracting for a considerable number of years, and that in ordinary class work a good deal of practice is obtained incidentally, the extent of improvement caused by the systematic tests is rather remarkable. The largest

¹ Whipple: *Manual of Mental and Physical Tests*, vol. II, p. 103.

² J. A. Green, M.A.: "Normal Performances in Fundamental Arithmetical Processes," *Journal Exp. Ped.*, June 5th, 1917, p. 97.

improvement was from 106 subtractions in 10 minutes to 483, an improvement of 356 per cent. The accuracy in this case was practically constant, the percentage error in the first and last tests being 2.8 and 2.9 respectively. Five subjects had percentage improvements between 200 and 300 per cent, and 28 between 100 and 200 per cent. According to results for computation quoted by Whipple, "those most efficient at the beginning gained on the average, as much or more (in gross gains) as did those least efficient at the beginning."¹ To get a measure of the relation between initial standing and improvement, the correlation coefficient was calculated. For this purpose the percentage improvement in the first five tests seemed most suitable, and the coefficients were found to be $-0.23 \pm .15$ for the boys, and $-0.27 \pm .17$ for the girls. No reliable evidence of correlation one way or the other is thus indicated.

According to Whipple, "practice in adding tends to reduce somewhat the initial differences between the S's, whereas practice in mental

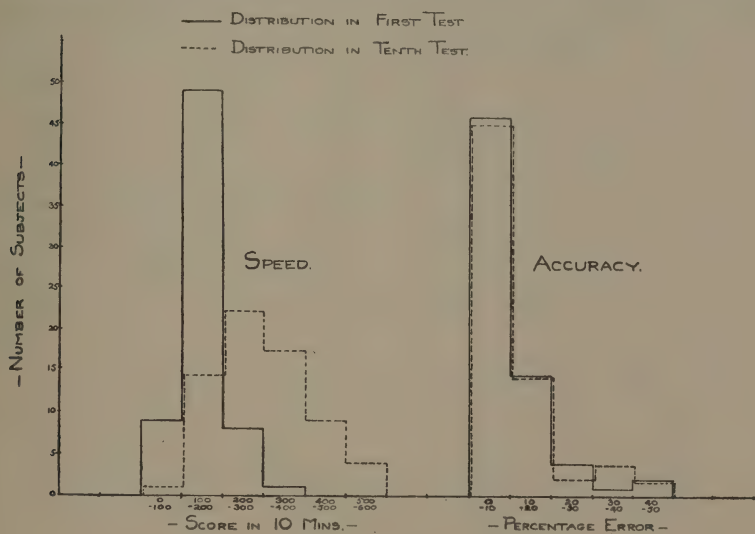


Fig. 2.
Effect of Practice on the Distribution.

multiplication seems not to affect much the relative differences between the S's, from which Thorndike concludes that the abilities demanded in mental multiplication are more dependent upon original capacity than are those demanded in adding."¹ In subtraction, however, the result found in the present investigation was totally different, at least as far as speed is concerned, as is shown by a comparison of the distributions in the 1st and 10th tests.

Practice thus tends to increase greatly the differences in speed between the subjects, and consequently it would appear that speed in subtraction is largely dependent on original capacity. It may be mentioned that in the last test the fastest subject was subtracting at more than six times the rate of the slowest, while the percentage errors were 2.9 and 1.1 respectively. On the other hand, practice seems to have remarkably little effect on the distribution as regards accuracy.

¹ Whipple: *Manual of Mental and Physical Tests*, vol. II, p. 104.

A PEDAGOGICAL SURVEY OF A SCOTS SCHOOL.

(Continued.)¹

By JESSIE J. FULLEGAR.

Orthography.

AN indispensable requirement for the determination of norms of achievement in spelling is the possession of series of words of equal difficulty and of regularly increasing degrees of difficulty. The early investigators utilized words selected arbitrarily, and as the difficulty of the spelling of the words was unequal, the results are useless for comparative purposes. The first attempt to decide the degree of difficulty of words in spelling was that of Buckingham.² As the relative difficulty of the words considered by Buckingham usually comes as a surprise to teachers and differs considerably from their preconceptions, it may be advisable for convenience and completeness to reproduce his series. In order of increasing difficulty the following words appear:—

*only, even, smoke, chicken, front, another, lesson, bought, pretty, nails, butcher, Tuesday, sure, answer, nor, raise, cousin, beautiful, touch, freeze, forty, instead, wear, tailor, tying, minute, pear, towel, tobacco, whole, button, janitor, quarrel, against, circus, sword, whistle, stopping, carriage, guess, telephone, choose, telegram, saucer, saucy, already, pigeons, beginning, grease, too.*³

In testing a school, some of the above words would be too difficult for the lower classes and some too easy, as a test of spelling ability, in the higher classes. Several lists, or lists for each class, are consequently necessary. Ayres⁴ has arranged seven series of ten words each, designed for grades II—VIII, the words being so selected that seven out of every ten pupils can spell correctly all the ten words assigned to that grade.

The series are as follows:—

2nd Grade.	3rd Grade.	4th Grade.	5th Grade.
foot	fill	forty	several
get	point	rate	leaving
for	state	children	publish
horse	ready	prison	o'clock
cut	almost	title	running
well	high	getting	known
name	event	need	secure
room	done	throw	wait
left	pass	feel	manner
with	Tuesday	speak	flight
6th Grade.	7th Grade.	8th Grade.	
decide	district	petrified	
general	consideration	tariff	
manner	athletic	emergency	
too	distinguish	corporation	
automobile	evidence	convenience	
victim	conference	receipt	
hospital	amendment	cordially	
neither	liquor	discussion	
toward	experience	appreciate	
business	receive	decision	

¹ See this Journal, Vol. IV, No. 1.

² B. R. Buckingham: "Spelling Ability: Its Measurement and Distribution"; Teachers' College, Columbia University.

³ Ibid, p. 51.

⁴ See Starch, "Educational Measurements," p. 99.

Applying these series we obtained the following results, given in percentage of pupils of each class with all ten words correct—

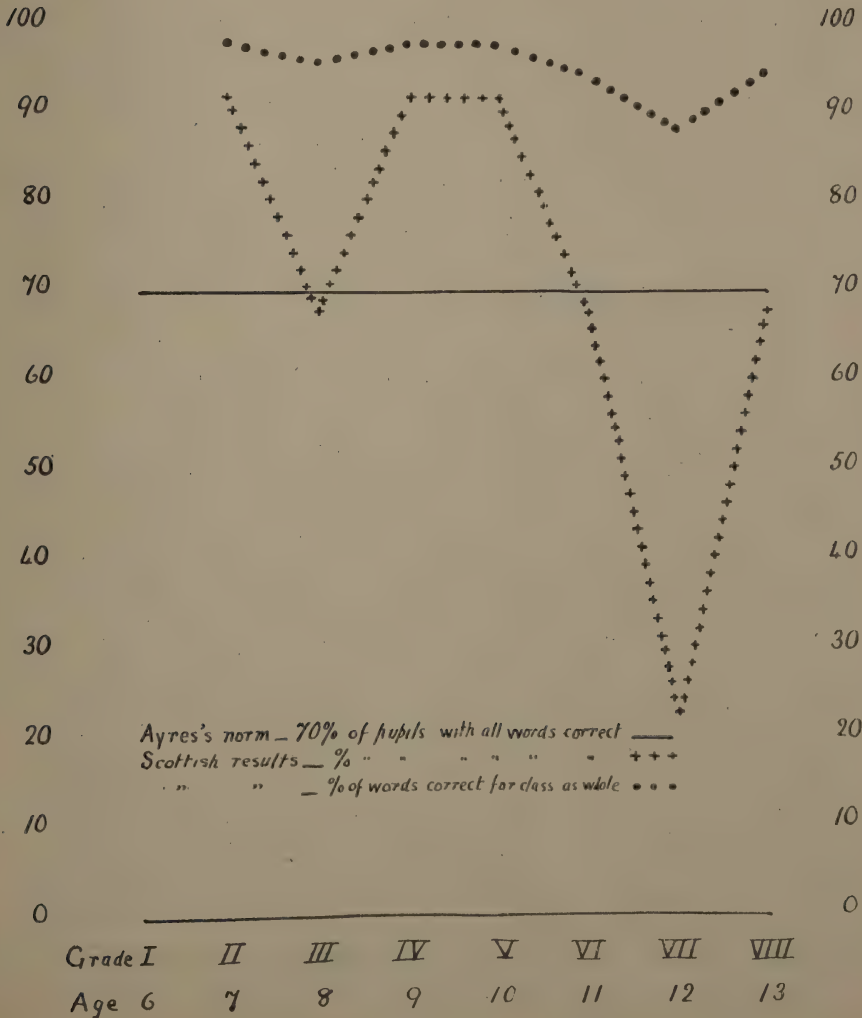
Age	7.	8.	9.	10.	11.	12.	13.
	92%	68%	92%	92%	68%	23%	68%

Ayres's method is to reckon only the pupils who have all the ten words correct. To indicate how misleading this method may be, the results for each class as a whole have also been calculated, that is the percentage of the total number of words which the class has correct was determined, the result being—

Age	7.	8.	9.	10.	11.	12.	13.
	99.2%	96%	99.2%	99.2%	94.8%	88.6%	95%

On Ayres's method of calculation one unfamiliar word may prejudice considerably the standing of a class, as the word "liquor" did with Scottish pupils of twelve years of age, and conceal the fact that almost every pupil had all the other words correct. When the results of the class as a whole are computed, credit is allowed for all the spelling which is correct, and a fairer estimate of the work of the class is made possible.

The results obtained by both methods of calculation along with Ayres's norm are illustrated in the following graph:—



In his criticism of Ayres's short lists, Starch objects¹ that the lists are too small and that the chance of familiarity or unfamiliarity on the part of individual pupils with these particular words is rather large. He is inclined to admit that while the lists may have validity for listing a grade or a class as a whole, they are apt to be quite unreliable as a test of individual pupils. Even against their use as a test for a class as a whole, if Ayres's method of calculation is adopted, the objection which Starch urges against the lists for individual testing evidently holds.

Ayres² has also selected the thousand words most frequently required for ordinary use in writing, and by applying the words to 70,000 children in 84 cities in America, was able to arrange them in series presenting equal difficulty to the pupils of the various grades.

Thus for the third grade the pupils should spell correctly the words *a, it, is, she, can, see, new*; and for the fourth grade, *of, be, but, this, all, your, out, time, may, into, him, to-day, look, did, like, six, boy, book*.

The following twenty words of equal difficulty were selected from Ayres's thousand-word list, namely, *offer, front, carry, itself, need, sorry, history, nor, always, number, thus, doctor, been, person, tax, press, something, capture, plan, act*.

They were put to pupils of from eight to twelve years of age, and the class-percentages, together with the percentage which Ayres expects of individual pupils, are here given:—

Grade	III.	IV.	V.	VI.	VII.	VIII.
Age	8	9	10	11	12	13
Ayres' Norms for Individual Pupils	58	79	88	94	98	100
Scottish Class Results ...	79.6	96.7	99.2	98	99.4	—

A more extended application of Ayres's thousand-word list will doubtless produce more satisfactory norms in spelling than at present exist.

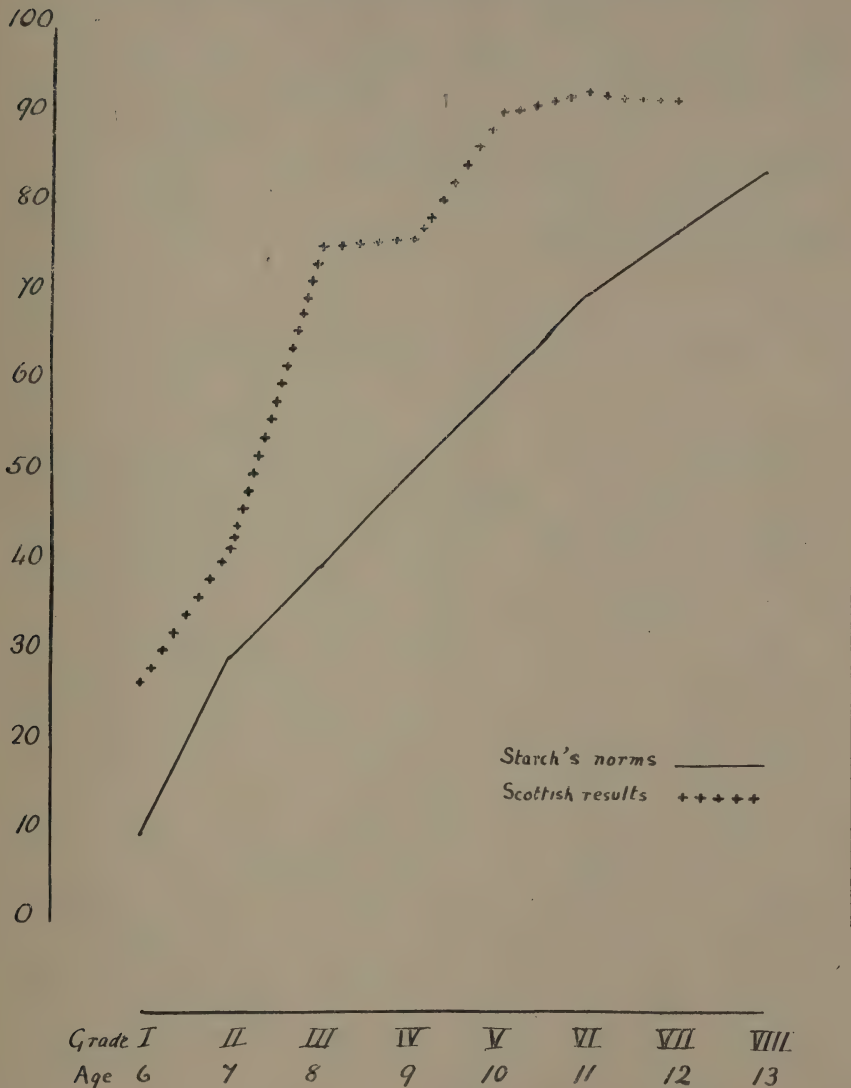
Starch presents six hundred-word lists, the words in each list increasing in difficulty. Norms for the various grades have been determined with these lists, and are given below. One list was applied by us with the following comparative results:—

Grades	I.	II.	III.	IV.	V.	VI.	VII.	VIII.
Ages	6	7	8	9	10	11	12	13
Starch's Norms (Percentage of words correct)	10	30	40	51	61	71	78	85
Scottish percentages ...	27	42	76	77	91.7	94	93	—

¹ "Educational Measurements," pp. 99-100.

² cf. Starch, "Educational Measurements," p. 99.

These results are represented in the following graph:—



The following objections have to be offered to Starch's procedure. Only the first forty words of a hundred-word list are dictated to the pupils of six years of age, and while no opportunity is afforded the pupils of attempting the sixty other words, the result is given as a percentage of the whole hundred, which may be misleading. The norm for six-year-old pupils is 10%, and the effect of dictating forty words to a class of this age when only one word in four can normally be spelled, is most depressing for the pupils. It also tempts them to write down words which they do not know, and thus acquire wrong impressions. Amongst the forty words of the various lists for six-year-old pupils

occur such words as *cone*, *alms*, *feud*, and *swain*. The same objection as to the method of calculation can be urged in regard to some of the higher grades, as with the second grade only sixty-five words are used, with the third grade eighty words, with the fourth ninety words, and only in the fifth, sixth, seventh and eighth grades are the whole hundred words applied. Starch evidently intends the hundred words to be given in one day, doubtless at one sitting, but even for the higher grades this tends to be exhausting. Whereas in the lower grades he only apparently avoids the difficulty which he indicates in the case of Ayres's short lists, in the higher grades he falls into the opposite error of making his lists rather long for single tests.

SCHOOL AND THE COMMUNITY SPIRIT.* I.

MOST teachers and most other people know what it means to change school. It is a common experience, leaving an impression upon our minds which is as a rule vivid and lasting. Is it not remarkable that this should be so? Elementary Schools have so much in common that the outsider is open to think one the same as another. Secondary Schools similarly run on much the same lines, yet a transfer from one to another is always something in the nature of an adventure.

Why should this be? Is it the buildings that make the difference? Certainly the awkwardness of not knowing our way about is uncomfortable, but many schools in particular areas are built upon a common plan. Inside and out the buildings may be exactly alike, and yet the change is not a simple one. The buildings do not make the school, and the difficulties which a strange arrangement of classrooms brings, are overcome long before we feel quite at home.

What does this phrase "to feel at home" mean? We use it as an expression of comfort which belongs less to the body than to the spirit. At home we are amongst people whom we know intimately. Home life is distinguished by its atmosphere of mutual good-will and helpfulness. Ideals are held in common. There is much co-operative effort, and individual wants are subordinated to the common good. Strength finds its outlet in helping weakness, and weakness advances to strength by putting forth its powers in such imitative service as it can render. At home we know our place amongst the rest. We can play a part there which fits in with the family life. Sympathy and understanding govern our relationships so perfectly that change from one house to another produces slight disturbance. It is only when one of its members leaves the family circle that the depth and subtlety of established relationships are realized.

To feel "at home," then, expresses a sense of adjustment to our human environment. We use the phrase on slight occasions when the situation is itself not likely to be prolonged, as when we are passing guests in another household, but it always means that we have entered into harmonious relationships with other people. More than this, we

*A series of papers addressed primarily to Training College students and teachers, in the hope of directing their attention to some fundamentals in modern pedagogical thinking.

may also note that all of us seek harmony of this kind. Youthful and adventurous spirits often enjoy the pursuit of what is new and strange, but many older folk find difficulty in establishing new relationships, though necessity may compel them to do so. In any case life outside them is hardly conceivable, and no punishment is more dreadful than prolonged solitary confinement.

Men seek their kind and enter into association with them. Even when thrown fortuitously together, if this lasts for any length of time, as in a long sea voyage for example, they do not long remain in isolation. Stiff and cold at first, the ice is soon broken, conversation becomes animated and social life begins. In eight or ten days, it may be, these men and women, who did not know each other before that time, almost resent the appearance of new passengers at a port of call as a rude intrusion. They have established relationships amongst themselves which will now demand readjustment. A day or two of discomfort must follow before the feeling of being "at home" is recovered. We may imagine also that the new-comers themselves feel "out of it" until they have found their places in the older group. Some joining of forces there must be or the voyage will be spoiled.

Let us look at the ship's company a little closer. It is made up of two parts, the crew and the passengers. The passengers have joined the ship with a common object. They have, it may be, a common destination, but their activities on board ship have nothing to do with their ultimate object. They put all responsibility for that upon the captain and the crew. Their bodily needs are provided for, and in their relations one with another they are chiefly concerned with amusement, the organization of which does much to overcome the tedium of a time in which all responsibility is handed over to somebody else. Slight as the ties of association under such circumstances are, the fact that it takes place so markedly as to give form and character to an otherwise irresponsible assembly, is a striking illustration of the strength of that tendency to form groups for common ends which is common to men. Man is by nature a social animal. He is a born co-operator. Whether he is conscious of the fact or whether he calls himself an out-and-out individualist, he cannot get on without the assistance of others. Put him into a position in which he is free from responsibility and where there is no scope for serious personal ambition, and you will find him joining up with others for some common object though it be nothing more worthy than passing the time.

Nothing is more striking or more characteristic in the behaviour of man than his tendency to form into groups. However primitive the civilization, men always live in societies. In their earliest form, no doubt, these social groups were based upon kinship, but the advantages of group-life were so great that social cohesion continued long after kinship was anything more substantial than a vague belief in a common ancestry. The group to which the individual belongs always exercises a certain authority over him. Sometimes this authority touches nearly every detail of his life. This could, of course, only be the case in small groups of primitive peoples living in conditions which demanded the utmost loyalty to social demands in the interests of common safety. A modern nation is so huge and so complex that an individual member may live his whole life without ever realizing that a demand of any

kind was made upon him from that source. In time of war things change, and the great society is insistent upon its claims, even to the sacrifice of life. Most men yield to the claim as if by instinct. Loyalty to the group, though it has been unexpressed for a generation, is latent in them and strong even unto death.

But in peace time, when the call of the great group (the State, as we call it in its organized form) is so slight that we scarcely feel it, men form themselves into other groups for particular objects. Sometimes it is religion that is the basis of these smaller groups. Men who worship God in the same way form a society for that purpose, or attach themselves to an existing organization. On a lower plane, men form societies for purposes of mutual protection in business or in trade. They organize political groups, literary societies, scientific societies, and social clubs. The list might be extended indefinitely. Very few individuals do not find themselves sooner or later driven by their own nature into one or other group, and those who cannot find a haven in an existing group usually make dissidence itself a bond of association with others.

Human societies take different forms according to the purpose for which they exist, or according to the circumstances which gave them birth. Those great societies which have organized themselves into States are sometimes Monarchical, sometimes Republican. The Prussian Monarchy is different from the British. Their origins and the course of history have made them different. The Republic of France, again, has little resemblance to that of the United States. A common name does not always mean a common organization. A cricket club works in a different way from a Conservative or a Liberal club. In all cases, however, the association—call it State, or Church, or club, or society, as the case may be—is a union of people held together by some common loyalty or some common purpose. In upholding the one, or working out the other, certain rules of conduct are laid down, or have been developed by experience, acceptance of which is a condition of membership. I cannot be a member of the Liberal Club and canvass for the Conservative candidate in the coming election, nor can a member of the Church of England avow his detestation of an episcopalian form of Church government.

Yet the individual man's interests are so manifold that he may be a member of many groups the purposes of which are not hostile to one another. He may be a Congregationalist, a member of the Smoke Abatement Society, of an Archæological Society, of the Independent Labour Party, of the Co-operative Society, of the Anti-Tobacco League, and of the Band of Hope. So it is with most of us. In so far as we have interests wider than ourselves or than our family circle—itsself the fundamental social group—we express those interests in union with others who share them. Men are by nature social creatures, and, as we have seen, this does not mean that they merely like to live in proximity with other men, but their whole lives are socially ordered. They enter into partnership with each other for the pursuit of common objects; they share and work for common ideals.

The full significance of all this has only recently, in modern times at least, been felt. We are beginning to recognize now that an individual, you or I for example, has no meaning outside his social setting. Try for a moment to imagine yourself with no social connections of

any kind, helping nobody and receiving help from nobody, hindering nor being hindered, neither learning from nor teaching anybody. Only on a deserted island could you fall into such a condition. If you try to put into writing what you conceive yourself to be, you will find you can only make a real picture of yourself by describing your position among other people—the services you render to them and what you receive from them. The most selfish of men is commonly the most dependent upon others whose service he is in a position to command, and those who pride themselves on their independence are usually either blind to their actual obligations or they live lives contracted beyond the endurance of most folk. A man may by arduous toil on a small holding provide food and clothing enough to maintain life. Even then he would hardly make his own tools or invent his own methods of cultivating the ground or of feeding and maintaining his stock. Try as he will, man cannot escape altogether from the toils of society, and the more he strives to do so the more he narrows his range of interests and dwarfs his own being.

It would be easy to elaborate this account of the necessary dependence of individual men and women upon their fellows. There are people who are commonly described as "independent." They do not, that is to say, work for their living. Clearly the dependence of these folk upon others is absolute. They rely on the good faith of other people to pay rent it may be, or to work at the machines which capital has provided, in order that interest may be paid upon it. When I buy a pair of boots I do not usually count up the variety of service which has gone to their production. The transaction between me and the shopkeeper is so simple and direct that it is easy to overlook the complexity of the organization which has been necessary in order that I may get my boots not only easily but also just at the moment I want them. Make an effort yourself to think out all that is involved in a transaction of this kind. You may not succeed in covering the whole ground, but you will in this way get a feeling for this particular aspect of social organization such as will help you to understand something of what is meant by the social complex and the place of the individual therein.

But this is only one aspect after all, and although this so-called economic aspect of human society is the one most easily recognized, and therefore most commonly talked about, it is by no means the most important. Man cannot live by bread alone. True, he could not live at all without it, but he shares this particular disability with all living creatures. His peculiarly human qualities are leading him to organize the production and distribution of food and clothing in such a way as to leave him greater freedom for other pursuits. Indeed, in all times some men have had such freedom, and although this has often been at the expense of the actual or practical enslavement of many of their fellows, the leisure of these people has not been all loss. They have been the lawmakers, the priests, the poets, and the artists of the past. From these classes, too, we have drawn the men whose travels and researches have revealed the world itself to us, and helped to make us masters of it. The results of their work have come down to us, sometimes from a very remote past, and constitute what we call our "social inheritance." Our laws, our religious organizations, our national institutions, our literature, and all that systematized body of experience which we call knowledge, are each of them the outcome of the social life of the past. They form as it were the spiritual atmosphere in which we live and move, and have our

being. They affect our lives in much more subtle ways than the things we eat and drink. It is not the difference in his diet which makes the difference between a Frenchman and an Englishman. Race, no doubt, has something to do with it, and the Germans across the Rhine have also affected the issue. How much of the difference we ought to attribute to geographical influences, to stock, to neighbours, or to outstanding individuals, like Cromwell and Napoleon for example, we can never settle, but we know the language and the literature which form the Frenchman's inheritance is different from ours. Its spirit is different, and the human soul nourished in it cannot fail to take on a form which is quickly distinguished from that which is peculiarly and essentially English. The Frenchman thinks and acts with a logical directness which is apt to strike an English mind imbued with a spirit of compromise as blind and brutal. He is nursed in a language which is chief amongst modern tongues for clearness as well as for grace. His mind takes shape accordingly. In general, we may say that *most of what we think and nearly all of how we think* is determined by the past history of our people, enshrined as that is in our language, our literature, our manners, and our institutions. Each of us is himself a social product. Not only has society given us the content of our minds, but the very mould in which our minds are cast, we owe to those who have unconsciously and through long ages worked out the linguistic forms we often take for granted as unquestioningly as we do the air we breathe.

Man is made to live in groups. The group nourishes both his body and his mind. But the group is itself composed of individual men and women who are consciously leading a life of their own. If these men and women were ill-nourished either in body or in mind, or in both, the group itself would be in danger. Its existence as a group is in the last resort only justified by the advantages it brings to the individual members. Their happiness and well-being is the ultimate object of the society to which they belong. This has not always been clearly recognized, yet the very nature of man has compelled him unconsciously to seek a form of social organization which would afford all men an equal opportunity of achieving the happiness which comes from making the fullest use of their latent powers in the common service. Such a state of society has not yet been reached, but it is a great advantage to us to know exactly what it is we are striving for. With this idea in our minds we can look backwards and interpret much that would be otherwise inexplicable in man's history. There we see vast but silent forces driving inarticulate masses of men forward in the struggle for freedom. They do not know their destiny. They flounder and blunder along, often taking backward steps, but the general trend is clear. Now we realize that the true defence of society lies not in the glory of its rulers, or the vastness of its dominions, but in the character of the men and women of whom it is composed. It is more than a hundred years ago since Bentham defined the object of government as the greatest happiness of the greatest number. We are not concerned here, however, to discuss a question which properly belongs to a book on Political Philosophy. Our business is merely to point to the ultimate object of society itself. Men live in groups because in group-life they can make the most of themselves. They are in the main what society makes of them. It is for the philosopher to consider the general principles to which a

given society must conform if its members are to achieve the full height of their manhood. Slavery on the one hand, exclusive privilege on the other, are not always easily recognized, but wherever they exist, they point to social imperfection which society will ultimately remove. Individual freedom is the common goal of every right-minded social reformer, but it is freedom within the society, and not the freedom of the irresponsible outlaw that is sought.

(To be continued.)

THE PLAY OF FANCY IN STORY TELLING.

By WOUTRINA A. BONE.

In the telling of stories of a certain type, might we not set fancy free to play about the common things of life? In the Spring-time of the Race, man lived an out-of-door life, and his vitalizing power overflowed to the natural objects around him. Gods and Goddesses of Sun and Moon, Spirits of river and cloud were created for and by him. Do not toys lead a double life? Are they not just toys by day, and individuals by night? How the notion transforms the stiff Noah in his ark, the woolly dogs with their beady unwinking eyes! Think of that summer night—

“A night so calm and sweet
When all the little boats woke up
And made a little fleet.”

Then there is the dainty dancing lady, in her paper skirt and tinsel trimmings, throwing her charms over the gallant-hearted tin soldier. And besides the toys, we have our Fire Fairies in the leaping flames and glowing coals in the nursery grate, the dancing, mischievous shadows flickering on the walls before the lamp is lit. We may surely enjoy this, though in its transient individuality it is hardly akin to the folk lore of old days.

We have Gluck's mug with the twinkling red-faced “King of the Golden River,” beaming from between the handles; the wonderful face on Pandora's box, sometimes smiling a welcome, sometimes bearing a malevolent grin, always insinuating and attracting. There is the picture of Uncle Rupert, whose sad eyes follow Mrs. Ewing's little cripple hero as he is wheeled about the room. Do not these show us what fancy may do in making common things live?

Robert Louis Stevenson, in his “Inland Voyage,” gives another delightful illustration. He comes to Compiègne and notices the Town Hall Clock. There are three little mechanical figures each with a hammer in his hand, and they chime out the halves and quarters of the hours. “They are brave time-keepers for the burgesses of Compiègne, with their gilt breast-plates, gilt trunk-hose, and flapping hats like cavaliers; as the quarter approaches they turn their heads and look knowingly one to the other, and ‘Kling!’ go the three hammers on three little bells below. The hour follows, deep and sonorous, and the gilded

gentlemen rest from their labours with contentment. At night, even, when grown people are snoring under quilts, here are these gingerbread figures winking and twinkling to the stars and the rolling moon." Stevenson leaves early next morning, at six o'clock; the streets are empty save for people washing down steps. "Nobody was in full dress but the cavaliers upon the Town Hall. They were all washed with dew, spruce in their gilding, and full of intelligence and a sense of professional responsibility. 'Kling!' went they on the bells for half-past six, as we went by. I took it kind of them to make me this parting compliment; they were never in better form, even at noon upon a Sunday."

I know a little Dutch girl to whom the statue of Erasmus standing in one of the wider parts of a street in Rotterdam played a very real part in her life. She had been told by a teasing Uncle that Erasmus would turn the page of his book when *he heard* the clock strike twelve. Many a day did she hurry along the street on the stroke of the hour and gaze up, at the grave, solitary figure, but he never moved. He was so great a scholar that he read on, undisturbed by the passing of canal boats, the traffic on the cobbles, the striking of the clocks and the bargaining of the market folk. If she had dared, she would have liked to stand on tiptoe and pull his gown *just once*, but by the time her courage was high enough, the hour had struck, and it was with a feeling of relief that she hurried on, only to be fascinated again the next day.

Hans Anderson is, of course, a master in the art. Does not Keats share with the German story teller the same power? The old bedesman creeping through the church on the bitter night of St. Agnes' Eve, sees the motionless "Knights and ladies praying in dumb orat'ries.....

"And his weak spirit fails

To think how they may ache in icy hoods and mails."

This capacity for entering into the life of men and things is a characteristic of Keats. His sweet peas "stand a-tiptoe for a flight." He writes: "If a sparrow come before my window, I take part in its existence and pick about the ground."

There is Elia writing of himself as a little boy on holiday, visiting his grandmother Field, wandering in the old garden, "basking in the orangery, till I could almost fancy myself ripening too, along with the oranges and limes, in that grateful warmth," or indoors, "where I..... used to spend many hours by myself, gazing upon the old busts of the Cæsars, that had been Emperors of Rome, till the old marble heads would seem to live again, or I be turned to marble with them."

That is a beautiful fancy of Maeterlinck's where he makes the Blessed Virgin step down from her pedestal in the Convent and live the lonely life of Sister Beatrice in the cloister, while she goes to live her life in the busy, happy world for which she is longing.

This dainty, glowing human-ness, shot through with fancy; this imaginative quality, we might well set free to play about the home-life and stories of the child. And fancy will readily *extend* to objects having no outward semblance of human life, as we see in the fluttering sweet peas and the ripening oranges. Who has not heard the cheerful little sprite who lives inside the tram-conductor's punch? There is Mrs. Peerybingle's kettle, who sang such a spirited duet with the cricket on the hearth, to pass the time before tea. There is the proud darning

needle, the false collar, and the old street lamp. Listen to the Old Bridge at Florence:—

“And when I think that Michael Angelo
Hath leaned on me, I glory in myself.”

Words have for all of us become living. But what if the *very letters* came alive, and slipped down to an embodiment of themselves? They do sometimes in Japan. Kobodaishi, a holy Buddhist Priest, was famed for his wonderful writing, his brush characters were most beautifully and marvellously wrought. One day a man mocked at a letter he had painted on the gate of the Emperor's palace at Kyoto, saying: “Why it looks like a swaggering wrestler!” But the same night he dreamed that a wrestler came to him, and beat him grievously as he lay. He awoke with the crying and the pain, “and saw the wrestler rise in the air, and change into the written letter he had laughed at, and go back to the tablet over the gate.”

The mysterious words which appeared on the wall of Belshazzar's banqueting hall seemed to one little child to have some magic life, partly by their mode of appearing but also because of the large type in which they are printed in the Bible.

Most of us have amongst our possessions things which are to us almost as human beings. They have grown into our lives, and share so much with us that they are accounted friends; life is richer for the life and love in these things. Do we not see the same idea in the Japanese belief that still holds in some families—some dolls really come alive. The old dolls who have been loved and tended by generations of little children really grow a soul. “How can a doll have a soul?” asked Lafcadio Hearn, of a little Japanese girl. “Why if you love it well enough it will live,” was the answer.

Some may doubt the wisdom of allowing and encouraging this play of fancy. “What is the good of imagination?” In “The Truants,” by Mason, this little dialogue occurs. “You will understand *now*?” “Why *now*?” “Because, recently, imagination has come to you. Imagination,—the power to see clearly, the power to understand, perhaps the greatest gift Love had in all his box of gifts.” Dreaming John is King of the Earth as he lies among the scented clover and receives his company “shod in gold.”

There is a sentence in Lowell's “My Study Windows,” that will be sufficient justification for the Story-teller. Imagination “is not made out of the understanding, that is not the sort of block out of which you can carve wing-footed Mercuries. The question for common sense is always, ‘What is it good for?’ A question which would abolish the rose and be answered triumphantly by the cabbage.”

Let us keep and cherish the rose!

REVIEWS.

Instinct in Man. A Contribution to the Psychology of Education. By James Drever, M.A., B.Sc., D.Phil., Lecturer on Education in the University of Edinburgh. (pp. x + 281.) Cambridge University Press, 1917. Price 9s. net.

SINCE the publication of James's *Principles of Psychology* in 1891, most writers in English on the theory of education have paid some attention to the rôle of instinct in the evolution of human character. It cannot be said, however, that they made very fruitful use of the concept before the appearance, rather less than ten years ago, of Mr. William McDougall's remarkable and most stimulating book on *Social Psychology*. McDougall, as our readers are well aware, not only propounded a new interpretation of the facts of instinct, but also maintained with considerable success that his view of them, when combined with Mr. A. F. Shand's theory of sentiments, brought practically the whole of human activity under the rubric of instinctive behaviour. Such a doctrine, argued with so much force and persuasiveness, could not fail to have as great an influence upon educational theory as upon the study of the social organism which McDougall had more directly in view. Moreover, since it challenged not only the orthodox traditions of biology, psychology, and "social science," but also one of the most important positions in the Bergsonian philosophy, its promulgation stirred up the waters of strife over a very wide area. The symposium on "Instinct and Intelligence," held at the joint meeting of the Aristotelian and British Psychological Societies in 1910, was a memorable moment in the conflict of ideas thus initiated or stimulated. That famous discussion has already prompted the publication of one important book—the admirable *Instinct and Intelligence* of Professor Lloyd Morgan, who was one of the symposiasts of 1910. It may be suspected that it has also had something to do with the appearance of the learned and able work that now lies before us.

Dr. Drever makes clear, in his opening chapter, that his main purpose is to give a "psychological account" of instinct in man, meaning by a psychological account one based entirely upon the examination and interpretation of "experience as experience." Thus his method not only differs radically from the "behaviourism" of writers such as Bechterew and Watson, which seeks to interpret animal life without any reference to the facts of consciousness, but is also to be distinguished from the procedure of investigators like Lloyd Morgan and Hobhouse, who do not scruple to draw upon the results of physiology and biology to supplement and guide psychological analysis. Dr. Drever deprecates the methods of the latter of these schools on the ground that they exemplify "a tendency which has recently appeared in psychology to extend the limits of the science in such a way as to cause it to lose its own identity" (p. 18). I am far from wishing to challenge the general legitimacy of the position upon which Dr. Drever takes his stand so firmly. The history of the other sciences (for example, mathematics) shows that the common interests of exact knowledge are often best advanced when the cultivators of a special branch insist upon keeping their methods "pure," and exclude the help of alien considerations. At the same time I cannot agree that departures from this principle are necessarily reprehensible, nor even that the cause of truth is always served by adherence to it. For instance, the theory of the "economic man" stands as a warning that a method, sound as far as it goes, may lead to a view of the field in which it is applied so partial as, in effect, to be false. I will go further and confess my belief that this may be true of "pure" psychology. So indubitable a psychologist as Ebbinghaus has pointed out in his article in *Die Kultur der Gegenwart* that mental life shares with the bodily life associated with it so many categories that we have at least no right to regard the two as fundamentally diverse. The studies of men like Jennings, to whom Dr. Drever refers, reinforce this conclusion, showing that the biologist and the psychologist, if they

take a sufficiently wide view of their tasks, are to a large extent working *in pari materia*. The facts emphasized by the school of Freud and Jung lend great force to the same argument. For if they prove anything, it is the importance for mental life of factors that cannot, except by a convenient fiction, be called experiential. In short, though it is both legitimate and useful that a writer should set himself, as our author has done, to explore the possibilities of a purely psychological method, yet the full significance of his results is likely to be missed unless they are put in their place in a view which regards man's body and mind as a single organism, the functions of whose parts cannot be understood apart from one another. It may be thought that this doctrine is particularly relevant whenever there is a question of applying psychological knowledge in the theory of education.

Whatever may be the truth upon this matter, it must be admitted that we owe to Dr. Drever's confidence in his own view a valuable chapter which we might otherwise have missed. For, in his anxiety to show that a study of instinct in man may be independent of biology, he has given a most interesting summary of the "descriptive psychology of natural inclination" from Hobbes to Dugald Stewart. The most novel element in this summary is the account of Malebranche's classification of the natural tendencies and emotions, in which, as Dr. Drever points out, the French philosopher anticipated much of the analysis of Ribot and McDougall and even adumbrated Groos's theory of play. The next chapter (Ch. III) carries the history of the concept of instinct forward on the one hand to Kant and the philosophers of the nineteenth century, including, in particular, Schopenhauer and von Hartmann, and, on the other hand, to the biologists of the Darwinian tradition. Here, incidentally, Dr. Drever's characteristic fairness and soundness of judgment is illustrated by a courageous defence of the phrenologists which should do much to rehabilitate that much-abused school of inquirers.

In Ch. IV we come to grips with the immediate business of the essay. Dallying dangerously with those extra-psychological ideas which he has sworn to avoid, Dr. Drever accepts from Bergson and McDougall the notion that instinct is "the 'life-impulse' becoming conscious as determinate conscious impulse." He defines instinct formally, however, as "conscious impulse . . . when and in so far as it is not itself determined by previous experience, but only determined in experience, while itself determining experience in conjunction with the nature of objects or situations determining experience as sensation." Armed with this carefully outlined concept he sets out upon the interpretation of "instinct-experience," and immediately comes up against the great problems of the relation between instinct and intelligence and of the validity of the distinction Bergson has made between intuitive knowledge and knowledge achieved by means of intellectual categories. His view, developed in Ch. IV as a polemic against Bergson and in Ch. V as a criticism of Lloyd Morgan, Stout, and the other symposiasts of 1910, is, in brief, that all experience consists in the "psychical integration" of cognitive elements with instinct-impulses, together with an affective accompaniment whose character normally passes from a feeling of "worth-whileness" (or "interest") to a feeling of "satisfyingness," either directly or through a phase of "tension" which is felt as "emotion." It follows that the difference between primitive "instinct-experience" and "intelligence" is not one of kind, but only of the degree or level of the psychical integration. It also follows that Bergson, in his famous distinction between intuition and intelligent knowledge, has been led by a false scent to an untenable conclusion. Intuition is not a special form of apprehension of reality. It appears at any level of psychical integration, whenever the apprehension of an object of cognition "glows with 'worth-whileness' and 'satisfyingness'"; for example, when we suddenly apprehend a material thing which meets the needs of a situation or suddenly grasp the relation which gives the solution of a mathematical problem.

Dr. Drever's general view of instinct is, as he acknowledges, substantially the same as McDougall's. It sets him beside the author of the *Social Psychology*

not only as against Stout, who denies the omnipresence of instinct in experience, but also as against James and his follower, Thorndike, who admit an indefinite multiplicity of instincts, each consisting in a tendency to respond in a definite way to a definite situation. Moreover, though he appears to have overlooked the debate between McDougall and Shand, printed in the *Proceedings of the Aristotelian Society* for 1914-15, it is clear that, on the major question there at issue, he is once more on the side of the former. On the other hand, he differs from McDougall as regards the position to be assigned to emotion in the instinct-process. As is well known, the emotion is a primary element in McDougall's scheme; he regards the instinct-process as being, so to speak, built up round it, whether the emotion has (in Mr. Shand's phrase) the "individual distinctness" of such affective experiences as fear or anger, or the relative vagueness of "emotional excitement." But for Dr. Drever, as we have already hinted, the emotion, properly so-called, is a secondary phenomenon, due to the "tension" that comes when the "instinct-interest"—the feeling of "worth-whileness"—is arrested in the course of its transformation into "satisfyingness." If this is a true view we should expect to find that "the development of the emotional element in instinctive behaviour proceeds *pari passu*, on the whole, with the dropping out of inherited special adjustments for particular reactions to particular situations" as we ascend the animal scale (p. 160). And Romanes is quoted to show that this is what does happen. "Biologically," then, "the function of emotion is apparently to reinforce impulse and interest" (p. 160).

There is, I think, much to be said for this view. For example, it seems to be supported by the experiments of Cannon and others upon the physiological accompaniments of certain emotions. On the other hand, is Dr. Drever sure that there are not differences in the quality of instinct-interest corresponding to typical characters of the situations in which it is awakened? If there are, is it not possible that the difference between the interest and the emotion that arises upon its obstruction is, after all, only a difference in the intensity or degree of development of a single affective factor?

There is obviously one class of cases which cannot easily be brought under the formula that emotion is always "feeling-tension": namely, the various "joy-emotions" of which McDougall's "elation" is a typical example. Dr. Drever is keenly conscious of the difficulty. He seeks to surmount it by the hypothesis that in joyful experience there really is a "feeling-tension," due to the fact that "satisfaction is in excess, or ahead of the action to which the satisfaction in question or the situation which determines it, is a stimulus." With regard to this explanation we must content ourselves with acknowledging that, whether it is correct or not, it is certainly both ingenious and plausible.

In my summary of the author's argument I have passed over an important chapter, to which we must now return. Everyone at all conversant with the literature of the subject knows that the question when and how the consciousness of "meaning" arises in experience is one that has occasioned the liveliest differences of opinion. In Ch. VI Dr. Drever comes forward with an attractive solution of the puzzle. For him the "primary meaning" of an object or situation apprehended for the first time consists entirely in the "instinct-interest" or "feeling of worth-whileness" which it arouses. Thus it is radically different from the "secondary meaning" which the object or situation acquires as experience of it develops; for this "looks before and after," and should rather be called "significance," while that is something that arises in the first moment of the experience, and can therefore contain nothing which is either reminiscent or prospective.

This is so simple a solution that one would gladly wish it to be true. If it is true, it does not in the least matter that it is, perhaps, not entirely new. Dr. Drever's idea is that the instinct-interest which he identifies with primary meaning is "the feeling of relation between an object or situation and an impulse towards that object or situation," and he states that Lloyd Morgan, while recognizing the affective factor in the primary instinct-experience, makes no use of it in

trying to account for primary meaning. Now, in a paper of my own (*Proceedings of the Aristotelian Society* for 1915-16, p. 174) I referred briefly to the possibility that "the meaning of the first appearance of the thing consists entirely in felt relevance to conational elements in the instinctive disposition," and spoke of this view as one which "I think Professor Lloyd Morgan is inclined to hold." I quote the passages to show that I thought I had found in Lloyd Morgan's writings the identical idea which Dr. Drever says he missed. But whether I found the view in those writings or read it into them, there is no question of the value of Dr. Drever's discussion of a very attractive hypothesis. It would certainly convince me, at least, if I could be sure of the meaning of Dr. Drever's phrase, "the feeling of relation," or of my own "felt relevance." How can a relation or relevance be *felt*, if feeling is to mean not obscure cognition but pure affection? The only means by which I can give a clear meaning to the statement is by regarding it as a condensed way of saying that when a perceived object or situation has, as a matter of biological fact, a certain relation to a certain instinct-impulse, a certain affective factor emerges and gives to the experience the character which we call its primary meaning. This view would compel us to recognize qualitative differences in the instinct-interest awakened in different situations. I have suggested, in my remarks upon Dr. Drever's tension theory of emotions, that such differences may exist, and that the varieties of instinct-interest may be simply the emotions and emotional excitements at a low level of development. If the suggestion is sound, Dr. Drever's view could be stated in the form that primary meaning consists in the "colour" given to the instinct-experience by the emotional response to the specific situation. We should have to meet the objection that a fully developed emotion—for example, fear—cannot be said to be the meaning of the object or situation which arouses it; but I imagine that difficulty might be evaded by means of the distinction between primary and secondary meaning in the very useful form which Dr. Drever has given to it.

I have devoted so much space to the discussion of these points of theoretical importance that I cannot give to the remaining chapters of the book the attention they deserve. It must suffice to say that though on the whole they endorse familiar views of McDougall and Shand, yet they contain useful criticisms and suggestions which those authors might well be glad to accept. In particular, it appears to me that the classification of innate tendencies given on p. 169 includes more than one interesting and important improvement.

T. P. NUNN.

An Adventure in Education. By J. H. Simpson. (pp. x + 207.) London: Sidgwick & Jackson, Ltd., 1917. Price 3s. 6d. net.

THIS book is an expansion of a pamphlet entitled "An Experiment in Educational Self-Government," which was published in 1916, but somehow did not find its way to the editorial table of the *Journal*. Its failure to do so is not altogether to be regretted, for though Mr. Simpson's preliminary report—reproduced as the first two sections of the present work—was remarkably interesting, it covered only the earlier stages of his "adventure," and it is an advantage that our notice may be based upon the complete account.

Mr. Simpson is one of the small but growing band of progressives who not only harbour philosophic doubts of the soundness of the "public school tradition," but have also had the courage to challenge it in its strongest fastnesses. He does not disclose the name of his school, but a curious inquirer will easily penetrate the secret. It must be added that only those who do so will be in a position fully to appreciate the striking significance of Mr. Simpson's work and the value of the tribute he pays to the head master, "without whose sympathy my experiment would have been impossible."

As the author constantly points out, the common idea that the public schools are democratic institutions is seriously at fault. The prefect system—which an unconsciously ironical compositor has described on p. 182 as "the perfect system"—is far from being a system of self-government in the proper sense of the

term. It is in truth a rather narrow oligarchy, which leaves the ordinary boy little scope to exercise freedom and its correlative, responsibility, in things that really matter. Hence it is that school public opinion and social energy, finding no worthier channels for expression, are so often devoted to nothing better than the ruthless maintenance of conventions which determine the height of a boy's collar, the colour of his socks, and the side of the street on which he may walk to school (p. 206). Apart from the prefects, the prominent athletes, and "a few permanent rebels, often the cream of our schools," the general body of boys "are deriving very little civic training from their membership of the community beyond habits of passive obedience to a rather unintelligent authority" (p. 5). In short, there is "a rather dangerous divergence between the spirit of the civic training which is given by the Public School and some of the larger tendencies of the national life" (p. 55).

Mr. Simpson, like other critics who have considered these defects with unprejudiced eyes, is convinced that they can be remedied only by "genuine self-government," which "must give to all boys, and not only to a chosen few, the opportunity of exercising the rights of active citizenship and of carrying out such duties as are imposed upon them by the community" (p. 191). The main substance of his book is an account of his attempt to apply this remedy within the limited area of his own form, which, for the space of a year, functioned as a self-governing unit within the school society. Many such experiments have been made or are in progress, and most of them have followed more or less fully the daring lead given by Mr. Homer Lane in the *Little Commonwealth*. The special value of Mr. Simpson's enterprise lies partly in its *locale*, but chiefly in the admirable candour and "objectivity" of his story of its progress. The undisciplined idealism of some apostles of the "new freedom" not only gives the enemy easy chances to blaspheme; it awakens honest but unpleasant doubt even among well-wishers. Mr. Simpson's evident sobriety and frankness disarm suspicion and inspire the reader with confidence. His boys are just the ordinary fellows we all know, and his account of their reactions to the novel situation he sprung upon them—reactions described with sympathetic and humorous insight into individual character—carries conviction.

The reader may well be left to enjoy, undisturbed by a reviewer's comments, Mr. Simpson's lucid narrative, his judicious summary of the results of his experience, and his illuminating final note on the important subject of "sneaking." We may point out, however, that considerable space is given to the history of a scheme of corporate marking that was designed to replace the "economic basis" which our author rightly discerned to be essential to the earlier success of the *Little Commonwealth*. This episode brought out clearly the fact, which all followers of the newer way must face, that changes in the basis of school or class government necessarily carry with them far-reaching changes in the whole spirit and method of instruction. This truth was appositely illustrated by the "most educative discussion" (p. 82) upon the relative merits of the prints from which the form purchased, by a voluntary levy, a specimen to be hung on the classroom wall, and a conviction of its importance is likely to be one of the firmest impressions the reader will take from his study of a book which has every title to be regarded as a valuable scientific document.

T.P.N.

"The Doctrines of the Great Educators." By Robert R. Rusk, B.A. (Cambridge), Ph.D. (Jena). Macmillan & Co., pp. 294. 5/- net.

THE reader is warned in the preface that "This work does not profess to be a History of Education; it confines itself to an exposition of the doctrines of a limited number of representative educators." It is thus one of a fairly numerous family of books, of which Quick's *Educational Reformers* is the best known member. Such books, undoubtedly, served a useful purpose in helping to modify the insularity of English educational thought, and in awakening a desire to bring the study of education into line with the historical method, which the last century

saw applied successfully to so many other branches of human thought and activity. But it may be questioned whether the time for such preparatory work has not passed away. It is true that such a work as the present may be found convenient if used to supplement a real study of the history of education. In the case of most of the writers considered the educational doctrines have to be gathered from a plurality of books, and many students will doubtless be pleased to find this done for them as clearly and systematically as Dr. Rusk has accomplished the task. But the assumption that there is any worth in a series of studies of great educators carried on in a historical vacuum is one which must be strongly denied.

It is evident that no thorough treatment of the twelve representative thinkers here chosen—Plato, Quintilian, Elyot, Loyola, Comenius, Milton, Locke, Rousseau, Pestalozzi, Herbart, Froebel, Montessori—is possible within the limits of so small a book. Presumably, by the word "exposition," Dr. Rusk intimates that the reader is not to expect much more than description. And it is mainly description, largely in the words of the writers themselves, that he gives. Certainly, this is critical in so far as criticism is involved in selection. But only in a few cases is there criticism in the sense of evaluation, and in those it strikes us as somewhat superficial. Locke, for example, is handled rather severely, because "the appeal to common sense is . . . no recommendation now in educational questions." If this is so, small wonder the "educationist" is "a voice crying in the wilderness." Again, no objection is raised to Rousseau's counsel to "keep the child dependent on things only" (page 150), and there is no discussion of the doctrine of life which underlay that counsel. But in the next chapter we read, "It may be questioned whether this conception embracing merely the uncontrolled and undirected influences on the pupil of nature and of life should be regarded as education at all" (p. 178). In the chapter on Herbart the fundamental question of the meaning to be attached to "presentation" is not discussed, with the result that the exposition as a whole can hardly be clear to the general reader or to the beginner in the study of educational doctrines for whom the book is presumably intended.

The absence of historical setting is apparent throughout. Thus, in the chapter on Elyot there is no reference to Castiglione's *Courier*. One knows not what to make of the statement that the Renaissance movement in England, as compared with Italy, Germany and France, was "mainly educational" because it produced More's *Utopia*, Elyot's *Governor*, and Ascham's *Schoolmaster*. Is Dr. Rusk unaware of the many books on education produced by the Renaissance in the other countries he names? But, perhaps, the clearest indication of Dr. Rusk's equipment as a historian of education is the statement that "the period of Rome's greatness was followed by an age of intellectual sterility, and it is only when we come to the Renaissance movement of the fifteenth century that we find the real successors "to Plato and Quintilian." So, apparently, the centuries that produced St. Augustine and the great Scholastics, that spread universities and schools over Western Europe and thronged them with eager students, was "an age of intellectual sterility."

J.W.

Experimental Tests of Mathematical Ability and their Prognostic Value.

By Agnes Low Rogers, M.A., Ph.D., Lecturer in Educational Psychology, Teachers' College. (pp. v + 118.) New York City: Teachers' College, Columbia University. 1918.

THE researches described in this volume—which counts as No. 89 of the series of "Contributions to Education" from the diligent and prolific investigators of Teachers' College—had a two-fold aim. Dr. Rogers's purpose was, in the first place, to repeat and push farther the kind of analysis of mathematical ability which has hitherto been best illustrated, perhaps, by Captain William Brown's well-known paper in *Biometrika*; and, in the second place, to determine, if possible, a set of readily applicable tests which could be used to assess the mathematical promise of secondary school children.

With the former of these ends in view, Dr. Rogers applied seventeen tests to 114 girls, of average age $14\frac{1}{2}$, taken from two high schools, each test being given twice. Thirteen of the tests were chosen as likely to be diagnostic of the various abilities that come into play in secondary school arithmetic, geometry and algebra, while the remaining four were tests of "language ability." The results, treated by the elaborate statistical methods with which Professor Spearman and his pupils have made us all more or less familiar, pointed to certain conclusions which, if not exactly novel, are certainly much more firmly established by Dr. Rogers's patient labours. Brown's main conclusion that mathematical ability is not a single gift but a complex of rather loosely correlated aptitudes was clearly confirmed, with the important addition that the verbal abilities diagnosed by such tests as the well-known "Mixed Relations" and "Logical Opposites" tests are constituents equally essential with algebraic and geometrical abilities. The partial totals obtained by summing the deviations in the tests of these three groups, taken separately, were found, in fact, to have approximately the same correlation with the grand totals obtained by summing the deviations in all seventeen tests. It follows that to assess mathematical ability we must follow the principle of Binet, and apply to our subjects a combination of tests the results of which are to be summed to yield the final assessment.

The next step, then, was to select a group of tests that could be used to determine a trustworthy index of mathematical ability with a small expenditure of time. Dr. Rogers proceeded upon the principle that while the tests should be taken from each of the three main groups, the abilities tested by them should at once be correlated loosely with those diagnosed by any other test chosen from the same group and show a high correlation with the composite results of the original seventeen tests. In the end six tests fulfilling these conditions were selected, two from each group. It was found that the half dozen tests could all be applied within an hour and a half, and that the composite results might be expected to give a correlation of from .6 to .8 with future mathematical achievement. In this modest space of time, then, it is possible to grade a group of pupils in order of ability in mathematics and to obtain a trustworthy basis for their classification.

The practical value of Dr. Rogers's conclusions is manifest. It is to be hoped that secondary school teachers in this country who have, or will take the trouble to acquire, the necessary equipment of statistical knowledge will repeat her investigations and determine whether her tests suffice, or, if not, how far they must be modified to serve the same useful purpose in our secondary schools.

T.P.N.

Manchester and the Movement for National Elementary Education, 1800-1870. By S. E. Maltby, M.A., M.Ed. (pp. xi + 172.) Manchester University Press. 10/6 net.

THE scope of this book is limited, and the title must be interpreted somewhat narrowly. The author himself warns us that "no attempt has been made to estimate the strength and importance of all the various great movements—religious, political, intellectual, economic and social—with which . . . all educational movements are bound up" (p. viii). But it is more than this. Neither is there any attempt to describe the practical educational movement for the provision of elementary schools, or to evaluate its results either quantitatively or qualitatively. A few statistics of the numbers of schools and scholars are, indeed, given in some of the appendices; that is all. The author's concern is with the propaganda work of Societies in Manchester whose object was generally to develop plans for the supply of free, compulsory, and undenominational, or secular, sohools. But to understand such movements as these it is necessary to know the actual educational, social, and religious conditions in which they originated, and which gave them not only force but meaning. Such knowledge Mr. Maltby gives his readers little or no help in acquiring.

Within his limits the author brings together some interesting and not unimportant matter, especially in the appendices, in which some of his sources are reprinted or epitomized. But little critical power is shown, and the real meaning of the question at issue in the struggle between the upholders of religious education as previously understood and the advocates of purely secular, or of 'undenominational,' schools seems to have been very inadequately grasped. Indeed, of the arguments of the former we read little; of their practical work in the training of the young, nothing. Inevitably, the presentation of the case which evidently has the author's sympathy is one-sided, and by that loses in effectiveness.

Nor is the distribution of emphasis always the most helpful. In Chapter V a good deal is said of the criticism directed against Sir James Graham's Bill, but there is no adequate account of the Bill itself. The same tactical mistake is made in Chapter VI in connexion with the Bill introduced by Mr. J. W. Fox, and again when it seems to be assumed that every reader will be familiar with "the American system" in 1851. Such errors in judgment can but detract from the value of the book.

We will conclude with an instance of 'religious' polemics in relation to education which would be amusing were it not sad. At a meeting in Manchester in 1849 the Rev. Wm. McKerrow, in a speech in opposition to the teaching of definite religion in schools, thus supported his position: "Are all Christian parents to become indifferent to the religious training of their own children? People do not send their children to school to receive religious teaching." The answer to this piece of platform rhetoric—which our author apparently thinks both pertinent and convincing, for he quotes it as presumably the most effective passage in "the most notable and able speech of the day" (p. 72)—is found in subsequent extracts from reports which lament "the lamentable indifference on the part of parents to their children's early training" (p. 99, and cf. pp. 78 and 98). Comment is superfluous. J.W.

"Differential Equations." By H. Bateman (Longmans' Modern Mathematical Series), pp. vi+306 (London, Longmans, Green & Co., 1918.) Price 16/-

THIS book completely fulfils the expectations formed on its first announcement, and one may congratulate Messrs. Longmans on having secured it for inclusion in their excellent series of mathematical text books.

The first five chapters contain an account of the simpler types of equation, their transformation, solution, and application. Chapters V and VI, devoted respectively to first order partial and total differential equations, contain some interesting new work and methods. Chapter VIII on linear partial equations of the second order is one of the best in the book, and includes an introductory account of much of Dr. Bateman's fundamental research work on the various potential equations. Solution in series and by definite integrals are discussed in Chapters IX and X, and this work closes with a short chapter on mechanical integration.

The treatment of the subject throughout is especially good, its purely mathematical precision being worthy of the best French tradition. At times one feels that the solutions obtained are the result more of happy guesses than of a formal development of the discussion, but this is probably a characteristic disadvantage of the subject itself. Dr. Bateman's close acquaintance with the results and problems of applied mathematics has enabled him to use these to illustrate the applications and developments of his subject in such a way as will surely make this book rank as a standard authority for all students interested in the applications of this subject. G.H.L.

The Re-education of the Adult. (iv+19 pp.) Headley Bros. 6d. net.

THE pamphlet, which is one of the "Papers for the Present," issued by the Cities Committee of the Sociological Society, contains a paper by Capt. A. J. Brock, M.D., dealing with the problem of shell shock as a problem of re-education, and

the substance of a paper on "The Convalescent as Artist-Craftsman," by Mr. Henry Wilson, President of the Arts and Crafts Society. There is much in both contributions of general educational significance. The problem of re-education in such cases is at bottom the same as that of the ordinary teacher, who is, after all, engaged in leading his pupil to discover himself as a person capable of rendering service in a world he understands. He does not call his treatment *ergo-therapy*, nor does he talk of "synoptic seeing," but when he learns that *ergo-therapy* means the cure by functioning, and that function is not only work in which a man's real individuality is engaged, but is also work done upon the realities of one's environment, he recognizes his own job, and he will agree too that the doctrine of *synergic* functioning—that is, of team-work, work done in co-operation with or in relation to the lawful activities of his fellows—is part of his revised conception of school activities. The paper is an interesting example of the many lessons which the treatment of war-psychoses will have for the educator.

BOOKS RECEIVED.

The Psychology of Special Disability in Spelling. By Dr. L. S. Hollingworth, assisted by C. A. Winford.
(vi+101 pp.) Teachers' College, Columbia University Press.

Introduction to the Scientific Study of Education. By Professor C. H. Judd.
(xii+333 pp.) Ginn & Co.

Civic Biology. A text book of problems, local and national, that can be solved only by civic co-operation. By Dr. C. F. Hodge and Dr. Jean Dawson.
(viii+381 pp.)

Comparative Education. A survey of the Educational System in each of six representative countries. Edited by Professor P. Sandiford.
(x+500 pp.) Dent & Co. 8s. 6d. net.

Social Purpose. By Prof. H. J. W. Hetherington and Prof. J. H. Muirhead.
(317 pp.) Allen & Unwin. 10s. 6d. net.

Schooling. Vol. I, Nos. 1 and 2. (A new journal published by the Teachers' College Press in Sydney, N.S.W.)

History. Vol. III, Nos. 10 and 11.

The Teaching of the French Verb. By G. G. Waterhouse.
Teachers' College Press, N.S.W.

Numerical Trigonometry. By P. Abbott. (x+163 pp.) With which is bound up "Mathematical Tables," for use in the exercises (33 pp.). Longmans, Green, & Co. 5s. net.

Mathematical Tables and Formulæ. By P. Abbott. (iv+58 pp.). Longmans, Green & Co. 2s. net.

Alfred de Vigny. Poèmes Choisis. Edited by E. Allison Peers. (xlviii+111 pp.) Longmans, Green & Co., for the Manchester University Press. 3s. 6d. net.

Submarine and Anti-Submarine. By Henry Newbolt. (viii+312 pp.) Longmans, Green & Co. 7s. 6d. net.

TRAINING COLLEGE ASSOCIATION.

Minutes of General Meeting held at Sheffield University, at 1 p.m.,
on Saturday, November 2nd, 1918.

THE Vice-Chancellor of the University having extended a hearty welcome to the members of the Association, the Rev. V. W. Pearson (Vice-President) took the chair, and apologies from Canon Dennis (President), Miss Mercier (Vice-President), Major H. E. Griffiths (Secretary), Misses Allan, Peat, Preston, Professor Adams, and Mr. D. R. Harris—most of whom were unwell.

Mr. T. P. Holgate was asked to act as Secretary for the meeting.

On the motion of Prof. Green, it was decided that the minutes of the last general meeting "be taken as read."

Speaking on the question of the Secretaryship of the Association, Prof. Green said that he had received a letter from Prof. Nunn, asking him to raise the question of a part-time paid official.

Resolved on proposition of Prof. Green and Miss Stephenson, that it is desirable that a paid Secretary should be appointed, and that the matter be referred for consideration to the Executive Committee—with power to act.

Miss Hale, the Chairman (Rev. V. W. Pearson), and Principal D. J. Thomas having paid tribute to Major Griffiths' services as secretary to the Association for 23 years, it was resolved, on the motion of the Chairman, "that the best thanks of the Association be tendered to Major Griffiths for his valued services, together with regrets that he is retiring from the office of secretary."

After some discussion as to what should be done with the Reports of Mathematics and History Sub-Committees, and the Report on the Conferences with the Board of Education, on their memorandum of June, 1918, it was resolved on the motion of Principal Thomas that such parts of the Reports as express the work of the Association be published in the *Journal* at the discretion of the Editor, whilst those which deal with Conferences with the Board of Education should be printed on leaflets—marked private and confidential—and circulated amongst the members of the Association.

There was considerable discussion on the Report of the Physical Training Sub-Committee, the main points at issue being whether it should be sent to the Board of Education stamped with the approval of the Association, or merely as a report of the Sub-Committee. This was ultimately settled by the passing of a resolution moved by Messrs. Welpton and Hudson in the bald form, "that the Report be sent to the Board of Education."

Professor T. P. Nunn gave a brief and succinct account of the proposals of a Conference which had been held at the instance of the Froebel Society, and suggested that the T.C.A. should consider these with a view to their approval. The proposals were:—(1) That pressure should be brought to bear on the University of London to make the course for a Pass Degree more suitable for teachers of lower and junior forms (e.g., making it possible to omit Latin, and narrowing the syllabus in order that certain subjects might be carried to a more advanced stage.) (2) That the taking of an Advanced Course at a Secondary School, completed by taking the Higher School Certificate, should exempt a student from the Intermediate Examination, and enable him to enter right away on the Final Course. (3) That this Final Course should consist of three subjects, including only one compulsory language (N.B.—which might be English). (4) That whilst the Final Course might be normally three years, it was suggested that it might often be two years only, but that the degree be not granted until after the end of a third year, which third year—in the case of teachers—could be spent in a Special Diploma Course. Professor Nunn urged the importance of the proposals in view of the needs of Continuation Schools, &c.

After some discussion, it was decided to postpone a decision until the Annual Meeting.

The Chairman then announced the date and time of the Annual Meeting, i.e., 10.30 a.m. to 1 p.m., and 2.30 p.m. to 5.30 p.m., on Friday, January 3rd, 1919. It was resolved to leave details to the Executive Committee, but certain suggestions were made. There was a general desire that Professor Nunn's statement *re* proposals for Pass Degree should be discussed. Arising out of a letter from the W.E.A., there was a general wish that the question of Adult Education should be taken up with reference to the Reconstruction Committee's Memorandum on Adult Education. Miss Mercier had written suggesting a joint meeting with, say, the I.A.H.M. and the Head Mistresses' Association, the I.A.A.M. and the Assistant Mistresses' Association, to discuss the "Relations between Training Colleges and Secondary Schools."

This was referred to the Executive, as was the letter from the League of Nations Association.

Mr. Welpton raised a question as to the relationship of the "Council of Principals" and the T.C.A., and it was decided to refer the matter to the Executive Committee.

The Rev. R. Hudson, who has been watching the progress of the Teachers' Superannuation Bill through the House of Commons, briefly explained its items, and answered questions put to him by various members of the Association.

Mr. Welpton complained of the exclusion of University Training Departments from the benefits of the Bill, and adversely criticized the existing Universities Pension Scheme. After discussion, a motion was proposed by Messrs. Welpton and Hudson to the effect that whilst welcoming the Bill as a valuable measure, the Meeting regrets the exclusion of the staffs of University Training Departments, and urges the Government to take steps to bring the Universities Pension Scheme into line with the Teachers' Superannuation Bill.

The following amendment, proposed by Principal Hendy, seconded by Miss Raw, and supported by Prof. Green, was ultimately passed:—"That this General Meeting of the T.C.A. welcomes the Teachers' Superannuation Bill as a measure that will promote the educational welfare of the nation, and make for unity in the teaching profession, but regrets the exclusion from the benefits of the Bill of the staffs of Universities and University Colleges, and considers it a grave injustice that what is, perhaps, the most important section of teachers in the country, should thus be placed in a less favourable position than others."

This having been passed as a substantive motion, it was further decided that it be forwarded to other Associations, who should be asked to approve it.

This ended the business of the meeting.

THE PASS DEGREE (B.A.) OF THE UNIVERSITY OF LONDON.

THE following notes give fuller details of the proposals referred to by Professor Nunn (p. 321) at the Sheffield Meeting of the Training College Association:—

It has long been felt that the course for the B.A. Pass Degree of the University of London does not give suitable preparation to Teachers in the Junior Departments of Secondary Schools.

With a view to seeing if there was any agreement as to what kind of a course would be desirable, a conference was held at which representatives of the following bodies were present:—Association of University Women Teachers, Froebel Society, Geographical Association, Head Mistresses' Association, Historical Association, Mathematical Association, Modern Languages Association, National Union of Teachers, University of London Graduates' Association.

After full discussion, the following resolutions were passed with one dissentient:—

- 1.—That in order to make the examinations of the London B.A. (Pass) Degree more useful for Teachers, certain alterations are advisable in the number of subjects required and the character of the syllabus.

- 2.—That at the Intermediate Examination in Arts for Internal Students, four subjects be taken, of which two must be languages, and one language must be English.
- 3.—That at the B.A. Pass Examination for Internal Students, *three* subjects be taken, of which one must be a language.
- 4.—That the Senate be asked to accept the Higher Schools Examination as an alternative to the Intermediate, on the understanding that the University Course be at least three years in length.

The Conference is unanimous in the opinion that in no way should the standard of the B.A. Pass Degree be lowered, and that all suggestions as to the number of subjects taken, changes in syllabuses, and type of question, should be made with reference to the character—and not the difficulty—of the work. Thus, though they propose that the number of subjects in the Final Examination be reduced to three, they do so in order that a more intensive study may be made of selected subjects, and with this thought in mind, various members of the Conference drew up the enclosed suggestions for modifications in the syllabuses in Junior Departments of Secondary Schools.

On grounds similar to those stated in the Report of the Committee appointed by the Prime Minister to enquire into the position of Modern Languages in the Educational System of Great Britain (cd. 9036) paragraphs 92, 93, the Conference considers it inadvisable to insist on the inclusion of Latin or Greek in the Pass Degree.

The Conference begs the Senate to consider these resolutions, and to allow a deputation to wait on it in order to give a fuller explanation to the proposals.

DEMONSTRATION SCHOOLS.

THE head masters and mistresses of schools attached to various training colleges in the London area organized themselves, some time ago, into a Demonstration Schools Head Teachers Association for the discussion of the special problems and interests of that type of school. They are now considering whether membership of the Association may not usefully be extended to include the heads of Demonstration Schools outside London. Communications from head teachers interested in this question will be welcomed by the Secretary, Mr. E. H. Beresford, L.C.C. School, Cromer Street, Gray's Inn Road, London, W.C.1.

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